Enhancing Student Learning: Study of a Motivational Resource for Educators

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Abstract

This study surveyed practicing classroom teacher's perceptions of a proposed educational resource "Avatar Academy" designed to enhance students', particularly young boys, motivation and general attitude towards learning. The Avatar Academy resource is an instructional guide for implementing a classroom reward system based on common game mechanics. The resource emphasizes the modification of current pedagogies to exploit the use of game design to engage boys. A survey of recent literature indicated an opportunity to study teachers' perceptions of the possible applications of game design mechanics to support the enhancement of student motivation and learning in the classroom. As a result the Avatar Academy handbook and blog resource were developed to assist teachers with the integration and administration of a program designed to enhance student motivation, especially boys, using avatars and a point based reward system. The resources were initially distributed to several practicing teachers for their review, and their feedback formed the basis for revisions of the Avatar Academy resource. After implementing changes to the resource based on initial teacher feedback, an updated Avatar Academy was redistributed and teacher opinions and perceptions of the tool's possible impacts on classroom learning were collected.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

This study examines the use of commercial gaming design principles, specifically the application of virtual identities and incentive systems designed to foster engagement, to develop an avatar-based progression tracking and reward resource called Avatar Academy. The resource aligns with contemporary understandings of good learning (Gee, 2005a) as defined by cognitive research (Carr, 2010; Gee, 2004; McGonigal, 2010; Papastergiou, 2009; Pellegrini, 2008) and support the development of instructional classroom practices that are motivational and engaging for boys. An examination of teachers' perceptions of the possible effectiveness this resource might have on student motivation and learning will provide valuable insight for possible implication for future research projects and inquiries.

However, before I present the discourses that justify this research endeavour, I must introduce my interests in an effort to help you, the reader, to situate the work presented here. My interest in the use of games and gaming elements grows out of my boyhood experiences where I felt that school was boring, but playing games (including video games) was motivational and occupied hours of my time. Indeed, there were times when school activities were structured similarly to games, and I found myself immersed and engaged in the classroom, and I wondered why school could not always be that way. For the first 2 decades of my life, I felt the same dissonance with school-based learning that many male children experience in their elementary education (Pellegrini & Bohn, 2005). I was made to feel bored, devalued, and, ultimately, alienated from the schooling system. I believe this dissonance has, perhaps, never been greater than it is now, as I witness children being constantly bombarded by a myriad of media-enriched interests promoted or delivered through a host of common household technologies (e.g., smart

phones, tablets, pc, TV). As the father of two boys, I am concerned about what school will be like for my children. I know that their own learning experiences, and perhaps their own self-construction of identity and self-worth (Gee, 2005c), are inseparably interwoven with the educational environment of our schools.

I feel strongly that we can and should change educational environments by providing teachers with choices about how they can adapt their instructional teaching practices and the classroom environment to reflect current cognitive science discourses and emerging forms of literacy. Gee (2005b) describes good learning as immersive and ongoing activity, in which students adopt a variety of new curricular identities while interacting with instructional design that is engaging and meaningful to students' personal identities. I want to make my own contribution to the process of change in which teaching practices evolve to embrace the good learning principles supported by contemporary cognitive research, and produce a resource that can serve as an example of just one way this could be accomplished.

This work is also inspired by my own observations of recent trends in our schools' perceptions surrounding "exceptionalities." Perceptions seem, to me, too often overlook the fact that *every child* is exceptional in many ways. Although much exceptionality may not be directly correlated with learning disabilities, I feel they should not be disregarded. My concerns are the ongoing incompatibilities between the nature of male children's development and my observations of the instructional practices widely used in schools. Pellegrini and Bohn (2005), for example, expand on the source of this concern, explaining that, in schools, most children diagnosed with attention deficit hyperactivity disorder (ADHD) are boys. They add that boys are generally observed to be

"especially vulnerable to the deleterious effects of prolonged periods of concentrated work" (p. 17). Pressures on educators to increase academic performance often force them to discount the role of play in children's development (Chmelynski, 2006), and student behaviour begins to resemble child labour, where students are completing work that serves institutional goals (Levey, 2009). Although it appears clear that the intention of most curricular mandates are to improve students' learning, should an emphasis on increased curricular-centric achievements become prioritized over the learning needs of male students? Surely, educators can still accomplish curriculum goals, but modify their delivery in such a way that fosters the extended engagement of young boys in learning activities.

The purpose of this study is to examine one classroom strategy that has been shown to have promise for providing engaging learning environments for young boys: the use of gaming elements (Gee, 2005c) by creating a resource that enriches classroom instruction with playful and effective elements of games. The resource will expose educators to alternative viewpoints of engaged learning experiences, the ones most boys experience while playing games. I feel strongly about promoting the evolution of classroom pedagogy by providing teachers with choices about how they can adapt their instructional teaching practices to reflect current cognitive science discourses and emerging forms of literacy, specifically those surrounding games and education. I would like to work towards providing educators with the resources needed to make that change. While this work emphasizes the modification of current pedagogies using game design to engage boys, it should be interpreted as only one small step in a larger movement towards the delivery of engaged learning experiences to all children in our schools.

Problem and Research Context

Why are boys increasingly observed as unengaged with classroom learning, and yet they are quite capable of acquiring advanced skills and knowledge necessary for playing video games? Several reasons have been noted in the research. First, classroom practices are still primarily content driven, and teachers continue to rely heavily on direct instruction to deliver this content and shift their instructional resources away from more engaging interactions with content (Gee, 2005c). Taking for granted the correctness of maintaining a strict adherence to curriculum objectives and a reliance on direct instruction, educators' practices can be antithetical to the achievement of deep and continuous learning (Gee, 2004). Rather than falling back on the reliance of direct instruction and content driven learning, contemporary researchers in cognition support the use of the more engaging learning principles found in games (Carr, 2010; Gee, 2003; McGonigal, 2010; Papastergiou, 2009; Pellegrini, 2008). Games shift the focus of learning from content to process, aligning closely with contemporary theories of good learning, and continuously create new learning environments that are ever more engaging in order to successfully compete in the entertainment industry (Gee, 2004). Professional educators have an opportunity to adapt new classroom management strategies, instructional delivery systems, and motivational techniques by viewing games as a pedagogical resource, rather than a leisure time distraction for their students. If educators choose to ignore, minimize, or defer the potential of video games to engage students in learning, they actively diminish children's learning experiences in schools (Gee, 2004). Unfamiliarity may be one of the chief inhibitors to the effective and sustained transformation of traditional classroom practices to better represent our current

understanding of good learning, found in abundance in successful commercial video games (Gee, 2004, 2005c).

Hall and Hord (1987; 2010) suggest that teachers often modify their instructional practices through a process of making small changes to their instruction over time. They renew their teaching, or add currency to their teaching, through a process in which they enhance an instructional strategy that has worked successfully for them in the past with new tools, ideas, or techniques. Therefore, one of the ways teachers may be able to bridge the gap between extended engagement of students, teacher's classroom instruction, and contemporary theories of learning could be to add game design principles to activities and instructional techniques the teacher already implements successfully. For example, Avatar-based classroom management systems with student performance tracking and feedback systems are fun engaging, and applicable to student participation in classroom learning experiences that the teacher already uses. However, there are currently very few existing resources available to teachers in a format designed to be easily integrated into teachers' current teaching practices (Gee, 2005b; Papastergiou, 2009).

Purpose Statement

Specifically, Avatar Academy, my Master Research Project, is a classroom management gaming resource designed for elementary classroom teachers that can be used in grades 1-8 as a tool to support the development of learning environments that incorporate the effective and playful elements of games, which may motivate boys to engage in the learning process. The Avatar Academy resource consists of a print teacher guide and an online student/teacher guide (Avatar Academy Online, 2012) and will serve as the basis for the research study into the resource's effectiveness in bridging the gap

between student engagement and classroom instructional strategies. In order to develop the resource and guide teacher feedback regarding the perceived effectiveness and motivational characteristics of the resource, the following research questions will be addressed.

Research Questions

1. How can the learning principles practiced by video game designers be transferred to the design of learning situations in classroom environments?
2. What are the impacts of game design mechanics on student social and academic learning, especially on boys, that teachers perceive may be derived from using such resource as the Avatar Academy with their students?

Theoretical/Conceptual Framework

Young boys are increasingly disengaged with traditional learning. Some educators might advocate for increasing teacher attention to the direct transmission of content and explicit instruction of skills (Gee, 2005c). Other educators propose that the culprit responsible for students disengagement is the same "skill and drill" based pedagogies utilized in an attempt to compensate for a lack of meaningful student engagement (Carr, 2010; Gee, 2004). These educators go on to identify, validate, and support the good learning principles that appear in video games, and link these principles to contemporary theories of learning in cognitive sciences (Carr, 2010; Gee, 2004, 2005a, 2005b; McGonigal, 2010). If these principles can be incorporated into instructional design, classrooms will offer greater incentives to foster students' extended engagement in learning activities (Carr, 2010; Gee, 2004).

The framework that informs the development of this resource, Avatar Academy, is the set of learning principles Gee (2003) derived:

> from his study of the complex, self-directed learning each game player undertakes as s/he encounters and masters a new game. He suggests that adherence to these principles could transform learning in schools, colleges, and universities, both for teachers and faculty and, most importantly, for students. (as cited in Smith, n.d.)

Of the 36 different design principles, there are three that specifically provide important guidelines for the construction of Avatar Academy, as well as other game-based classroom resources. For example, any avatar system builds on, but is not limited to, the specific use of gaming principles and virtual identities, including:

1. Committed Learning Principle: Learners participate in an extended engagement (lots of effort and practice) as extensions of their real-world identities in relation to a virtual identity to which they feel some commitment and a virtual world they find compelling. (Gee, 2003, pp. 203-210)
2. Identity Principle: Learning involves taking on and playing with identities in such a way that the learner has real choices (in developing the virtual identity) and ample opportunity to meditate on the relationship between new identities and old ones. There is a tripartite play of identities as learners relate, and reflect on, their multiple real-world identities, a virtual identity, and a projective identity. (Gee, 2003. pp. 203-210)
3. Psychosocial Moratorium Principle: Learners can take risks in a space where real-world consequences are lowered. (Gee, 2003. pp. 203-210)

A blend between real-world players and virtual characters is created when a player "imbues their avatar with a certain trajectory through time based on my aspirations for what I want that character to be and become" (Gee, 2005c, p. 55). This projective identity transcends identification with characters in novels or movies, for instance, because it is incomparably more interactive (Gee, 2005c). Finally, Gee (2005c) states

> projective identities are fun and powerful. I believe that they are the very heart of learning. Students will learn things like science deeply only if they take on projective identities as part and parcel of the learning. Only if they project their values, desires, hopes, and fantasies into the identity of being a scientist of a certain sort and doing science of a certain sort as their own project in the making, an identity which they imbue with a certain trajectory through time based on their own aspirations for what they want to be and become, can they learn deeply in the sense that science becomes part of themselves. This is a power good role-playing games have and schools rare do. (pp. 115-116)

The resource created for this study, *Avatar Academy,* exploits the effective design elements found in games, transferring them from the video game into the classroom. The reward systems, immediate feedback systems, and motivation and engagement building tools found in children's favourite virtual games are applied to everyday classroom activities. To be clear, Avatar Academy seeks to develop new frontiers in education by applying design elements used exclusively in the virtual world and applies them to the physical environments such as the classroom.

Importance of the Study

This study examined practicing classroom teacher perceptions of an avatar-based progression tracking system resource, called Avatar Academy that was designed to enhance student motivation and general attitude towards learning. Avatar Academy was developed using the good learning principles described by Gee (2003, 2004) as learning outcomes of engaging in games. Specifically, Avatar Academy applies the engaging elements of play and virtual identities to classroom instruction.

Although the purpose of this study emerged from my past childhood experiences as a boy and my observations of escalating dissonance from schooling, the implications may extend well beyond particular demographic categorizations, such as sex or gender, and highlight the need for educators to slow down and take the time to attend to the many facets of human learning, especially the ones unique to our children.

Implications for practice may support ongoing pedagogical transformations, connecting gaming design to how we construct learning environments in our schools. This study aims to demonstrate how changes, even small tweaks, to traditional schooling practices may generate greater student success and increasingly positive perceptions regarding the school environment. The results will also provide the basis for future development of educational resources that promote positive changes in school environments.

Scope and Limitations

Generalizability of findings from this research project is not expected. This is due to the fact that convenience sampling was used, and adherence to true random sampling was not performed. All participants are teachers in a school board in southern Ontario.

Although participants are from different cities, their ties to the same region may limit the broader transferability of any findings. A more diverse sample population would be required for more transferable findings.

This study is also the first time the activities in this educational resource have been implemented in the classroom. Despite the fact that I plan to improve future releases of the resource, we must be aware that these first few renditions will continue to reveal important, but overlooked, considerations.

There are as many ways to teach as there are philosophies of education. The varying teaching styles and preferences of each of the four teachers involved have most likely influenced the results each provided. For example, teachers who support constructivist learning or are willing to try new approaches, may have provided favorable feedback, not because of the projected effectiveness of the resource, but because they are motivated and effective teachers. The results may also be influenced by a teacher's personal opinions of these classroom teaching strategies, including, but not limited to, the specific associations they may have regarding the use of games in the classroom or gaming culture.

Outline of Remainder of Document

In Chapter Two, a review of related literature has been conducted to provide contemporary research justification for the design, production, and research inquiry surrounding a game-based instructional classroom resource, including: (a) the developmental importance of play for boys; (b) learning to play, playing to learn – through gaming; (c) elements of play in schools; and (d) elements of play in video games.

Following this, Chapter Three will describe the research methods used in this study. This chapter will include: research design, descriptions of the participants,

definition of data and its collection, analysis of the data, limitations of the study, and ethical considerations.

Chapter Four presents the Avatar Academy resource, which outlines the goals and execution of the game-based instructional resource, which was distributed to teachers for feedback. The handbook also introduces teachers to the research supporting the use of good learning principles, found in video games, in the classroom. The execution of Avatar Academy is outlined with specific steps for implementation and helps direct teachers' appropriate use of the black line masters and online resources available to them.

And, finally, Chapter Five presents a summary of the conclusions reached in the investigation, as well as a discussion of how the findings contribute to an understanding of how elements of game-based play can be integrated into classroom teaching practice. The chapter will conclude with recommendations for improvements to the resource presented in this research as well as possible directions for future research.

CHAPTER TWO: REVIEW OF THE LITERATURE

In this study, examining teacher perceptions of the effectiveness of a game-based classroom management strategy, called Avatar Academy, to motivate and engage students, specifically boys, in classroom learning, several areas of research informed both the design of the resource, and the feedback that was collected from the teacher participants.

This review of literature describes these factors that promote engaged learning experiences for boys, specifically the integration of play-based and gaming strategies. These factors include (a) the developmental importance of play for boys; (b) learning to play, playing to learn – through gaming; (c) elements of play in schools; and (d) elements of play in video games.

The Developmental Importance of Play for Boys

The importance of play in the development of children has long been established (Pellegrini, Blatchford, Kato, & Baines, 2004; Piaget, 1962; Vygotsky, 1966). Children's play is an important opportunity for juveniles to try new strategies and behaviours in a safe and low risk way (Pellegrini, 2004). Play activities are a sort of simulation of adulthood. Children can create, address, and solve adult problems metaphorically using highly imaginative and engaging narratives. In doing so, they develop new capacities to tackle future problems they may encounter in the real world without the possibly harsh consequences of failure that real circumstances may present.

Play in human beings shows a variability and complexity that surpasses what is observed in other species due to our own developmental complexity, including our language abilities (Jarvis, 2007). Jarvis further explains that the specific behaviours of boys during play include the use of complex narrative and imagination, often

demonstrating a preference for "danger, conflict, destruction, heroic actions, and trials of physical strength" (Maccoby, 2000, p. 402) in the stories they invent, the scenarios they enact when playing with other boys, and the fictional fare they prefer. Boys' preferences for friendships based on shared activities involving danger, conflict, and adventure reflect bioculturally significant interactions necessary for the development of particular sets of social skills that will aid them in the social navigation and negotiations of their adult lives (Maccoby, 2000). These assertions represent more than a window into how boys prefer and are genetically driven to spend their leisure time, they provide valuable insight for educators to find grounds for fostering engagement of their students.

Learning to Play, Playing to Learn – Through Gaming

It has been widely agreed upon by many researchers that the play during gaming has qualitative impacts on student motivation and performance in learning (Aldrich, 2009; Gee, 2003, 2004; Papastergiou, 2009; Pellegrini, 2008; Pellegrini & Bohn, 2005; Pellegrini et al., 2004; Roseth, Pellegrini, Boh, Van Ryzin, & Vance., 2007). Hutchison (2007) suggests there are "pedagogical lessons to be learned in addressing the potential of video games to entertain, inspire, and teach" (p. 21). Aldrich (2009) identifies how games foster opportunities for "exposure to a particular set of tools, notions [sic], or ideas" in "persistent social environments" that include "rigorously structured scenarios carefully designed to develop specific competencies that can be directly transferred into the real world" (p. 1). Therefore, learners are involved, motivated, and engaged when specific knowledge or skills are delivered through games and game like activities (Gee, 2008). In my opinion, it is time for practitioners to acknowledge researchers' claims regarding the value of merging game design with classroom instruction.

However, while much of the current discourse supports the use of games in education, it does little to address the application of these findings or limits them to the adaptation of existing games, or the creation of original games, for occasional and situational lesson plans. Research of the literature highlights the opportunity for the production of a resource that directly and more broadly applies the processes of game design to educational development (Papastergiou, 2009). Gee (2005a) asserts that we can "make school and workplace learning better" if we can begin "applying the fruitful principles of learning that good game designers have hit on, whether or not we use a game as a carrier of these principles" because successful games "are designed around a good theory of learning—one supported by current research in cognitive science" (p. 6). Play is not just a byproduct of leisure time, entertainment, or youthful energy; it is a natural component of children's development and learning and it requires appropriate treatment. The questions remains: How can we use the elements of video game design in the classroom to create engaging motivational learning environments?

Elements of Play in Schools

In an age where schools are judged by standardized test results, such as EQAO scores, children are exposed to an increasing compression of the curriculum (Carr, 2010). Skimming through any Ontario curriculum document, the abundance of factual knowledge is overwhelming. Teachers may find themselves in a situation where too much time diverted to students' engagement and deeper learning could easily lead to the omission of at least some of the required content outlined in the curriculum. The pervasiveness of our school's content obsession, where many educational practices have an almost exclusive focus on the transmission of factual knowledge (Gee, 2003, 2004),

has been detrimental to less measurable forms of education, such as imaginative play. As a result, schools today face what Gee (2008) calls the "central paradox of deep learning" where many educators pursue "post-progressive pedagogies that combine immersion with well-designed guidance" (p. 201). Gee (2008) explains

> [It] won't work to try and tell newcomers everything. We don't know how to put it all into words, because a domain of knowledge is first and foremost made up of ways of doing, being, and seeing, ways complex enough that they outrun our abilities to put them all into explicit formulations. When we do put what we know into explicit words, learners often can't retain them or even really understand them fully because they have not done the activities or had the experiences to which the words refer.
>
> Yet as we have already said, simply turning learners loose to engage in the domain's activities won't work either, because newcomers don't know how to start, where to look for the best leverage, and which generalizations to draw or how long to pursue them before giving them up for alternatives. (p. 201)

There is a call from the research for a balance between instructional methods that deliver content, and instructional methods that encourage interactive play and creativity. For example, Paley (2004) encourages teachers to remain resilient to the pressures forcing many educators to withdraw children from their engagement in "magical thinking, attempting to counteract fantasy play with reality-based activities" (p. 57). Bjorklund and Pellegrini (2000) discuss the implications of theoretical biocultural and evolutionary psychology approaches for play-based educational practices, stating

> play seems to have been especially adapted for the period of childhood, and is what children are 'intended' to do. Remembering this may cause us to think twice before modifying children's environments to achieve one goal (e.g. more focused learning opportunities at schools) at the expense of play. (p. 331)

Other unique elements for play-based learning that exploit game mechanics may also enhance classroom learning. For example, game mechanics that could be included in classroom instruction include the following:

- highly detailed reward systems that offers students distinct choices;
- tiered reward systems that escalate with students' academic and social progress;
- reward systems that promote a sense of communal discovery and social prestige;
- incentive systems that support curriculum goals and integrate with most instructional practices;
- gameplay that appeals to students' leisure time preferences.

These are just a few of the design considerations that games successfully implement to increase motivation and engagement, and that might also be suitably used in school classrooms to achieve similar results (Gee, 2004).

However, designs for play based learning that exploit game mechanics offer unique elements that may also enhance classroom learning, but are not included under the umbrella of "play-based learning" and are currently absent from school classrooms (Gee, 2004; Papastergiou, 2009). Even though play based learning has recently seen increased support and implementation, evidenced by the new play based programs rolling out in

full-day Kindergarten classrooms across (Ontario Ministry of Education, 2010), current designs for play-based learning focuses on manipulating objects, acting out roles, and experimenting with different materials to enhance children's learning experiences, and are almost exclusively directed to Kindergarten classrooms (Council of Ministers of Education Canada, 2012). Therein lies the opportunity and need to design and implement resources that integrate these mechanics in the classroom.

Elements of Play in Video Games

There are multiple design elements that make video games engaging: Gee (2003) lists 36 such design elements. However, in my extensive experience, the one game element found in almost all successful video games is an avatar system. This design element capitalizes on boys' inclinations for role playing and imaginative play with preferences for danger and heroic actions (Maccoby, 2000). An avatar is a projected self-representation that exists within a virtual world alongside other player avatars. Players can choose to work with or against each other, using their avatars' actions to shape their own identities and the social landscape of these virtual worlds.

Certainly one of the most well-known examples of this game mechanic in action is the massively multiplayer online role playing game (MMORPG) World of Warcraft®, in which millions of players worldwide dedicate their time and effort to the advancement of these virtual self-representations. Avatars may be perceived by casual observers to be a lofty relationship between the real individual and a virtual character at best; however, the player using the game mechanic of employing an avatar has been observed to engage in a compelling experience, which motivates the player to extend engagement in the game (Gee, 2004). This game mechanic removes the distinction between learning and playing

by associating the student's own learning progress with their avatars progress in the game world (Gee, 2004). With the proper incentives in place, learning becomes part of the game.

For example, some of the incentive mechanics exploited by games to enhance motivation have been identified and explored by researchers, such as Jane McGonigal (2010) and Seth Priebutsch (2010). Some important ones are:

- Appointment: students always have something to achieve, urgent obstacles that students need to overcome to achieve their goals (McGonigal, 2010; Priebutsch, 2010).
- Feedback: effort and determination are rewarded, ongoing and consistent sense of progression, development of influence and status among peer groups (McGonigal, 2010; Priebutsch, 2010).
- Social Fabric: peers share a sense of communal discovery, blissful productivity through collaboration (McGonigal, 2010; Priebutsch, 2010).

To demonstrate how these mechanics exist in games, a variety of screenshots from the Massively Multiplayer Online Role Playing Game (MMORPG) World of Warcraft have been selected for presentation in Figures 1-7.

Figure 1 illustrates a virtual world that is filled with nonplayer characters (NPCs) that require players to accept tasks called “Quests.” Many quests are single tasks, and others are complex chains of events interwoven in the larger narrative of the virtual world. Most quests require players to engage in inquiry, problem solving, and collaborative work. In addition to developing new skill proficiencies, these quests reward efforts with a wide variety of virtual items for players’ avatars’ use.

Figure 1. Quest accepted!

Figure 2 displays one of the rare and powerful villains in this virtual world narrative for players to overthrow. These foes are so powerful, players must join groups as small as 5 avatars or as large as 40 avatars. The completion of these tasks represents weeks and sometimes months of a player's time spent planning, organizing, practicing, and are often regarded as the pinnacle of accomplishment. As such, a player's avatars are rewarded for their efforts with items that greatly increase performance and carry huge social prestige.

Figure 3 shows a player's avatar being rewarded with "achievements" for their efforts in adventure and exploration. For example, this player's avatar has earned the World Explorer achievement for exploring every continent in the virtual world. Achievements are highlighted with a brief burst of dazzling particle effects.

Figure 4 shows a player being rewarded with "experience" points for completing quests and other in-game objectives. Avatars "level up" as they pass predetermined experience thresholds. To acknowledge these milestones, players immediately receive additional passive bonuses enhancing the performance of their avatars. Leveling up is also highlighted with a brief burst of dazzling particle effects. While the highlighting effect may appear to be insignificant for the casual observer, gamers receive a sense of fulfillment and accomplishment from this immediate feedback.

Figure 5 displays a spectrum of icons at the bottom of this player's screen which contains the avatar's ability bars, loaded with dozens of abilities players have actively chosen from a wide array of optional abilities to distinguish their avatars with a unique blend of specific avatar archetypes. Players must learn to successfully apply their abilities in many different permutations. Success means choosing specific applications that match

Figure 2. Raiding.

Figure 3. Achievement unlocked!

Figure 4. Level up!

Figure 5. Abilities.

the circumstances their avatar encounters and the role their avatar archetype is expected to perform in those circumstances.

Figure 6 portrays a player's talent tree they fill with points they receive for levelling up. These talent trees present choices to players, allowing them to customize their avatar by enhancing preexisting active and passive abilities or choosing uniquely specialized abilities. These choices allow players to distinguish the role of their avatars and to alter the role expected of their avatar archetype.

Figure 7 shows players organized in collective groups called Guilds. Guilds contain as few as two player's avatars and as many as hundreds of player's avatars. In a Guild, players work together, pooling resources, such as knowledge and time, to accomplish goals that could never be completed independently, like raid encounters in Figure 2. But more importantly, they bring players together and foster social cohesion, not unlike that found in other "real life" clubs with sport, literature, art, or any other theme.

While the game design elements, like those illustrated in Figures 1 through 7, have been observed to foster motivation and extended engagement during learning activities, they have not been widely implemented in classrooms (Gee, 2004). Therein lays the opportunity and need to design a resource instructing the use of mechanics in the classroom, and to gauge practicing teachers' perceptions surrounding the use of such a resource.

Figure 6. Customizable talent trees.

Figure 7. The guild.

In order to facilitate teachers' use of gaming instruction, a resource is required from which educators may learn to play so that their students may play to learn. When we take the time to explore and act on knowledge, like children do during play, we encounter authentic and meaningful learning experiences that result in the establishment of a deeper understanding of knowledge, in a way that the learned knowledge can be transferred to other scenarios, practices, and problems encountered in life. While the game design elements illustrated in Figures 1 through 7 have been observed to foster motivation and extended engagement during learning activities, they have not been widely implemented in classrooms (Gee, 2004). Therein lays the opportunity and need to design a resource instructing the use of mechanics in the classroom, and to gauge practicing teachers' perceptions surrounding the use of such a resource.

SUMMARY

Advocacy for the utilization of the learning design principles of games in instructional practices of teachers requires an understanding of how play supports the social and cultural development of boys. Through play, boys work out how to interact with others socially, negotiate complex narratives, and engage in a sense of adventure; a specific set of social skills needed for living and working in the adult world. Research has indicated that video games build upon the engaging and motivational aspects of play through specific game mechanics, including the use of avatars, narratives with urgent obstacles to overcome, rewards for effort and determination, a sense of communal discovery, and the inclusion of distinct choice. However, these game mechanics are not often included in play based classroom instructional experiences, even though research also indicates that gaming has qualitative impacts on student motivation and performance

in learning. Incorporating the elements of video games within classroom instruction without the use of a video game through resources that support teacher implementation is an area that is needed.

CHAPTER THREE: METHODOLOGY AND PROCEDURES

The purpose of this study was to develop a resource teachers could use in the classroom to simulate the same engagement and motivational qualities fostered by video games –a classroom resource that would bring game mechanics into the heart of the classroom while simultaneously capturing the imagination of young boys by embracing their personal interests. The resource developed, called Avatar Academy, is an avatar-based progression tracking system that incorporates effective and playful elements of game design, which may motivate boys to engage in the learning process. The resource was submitted for teacher examination and feedback guided by the following questions:

1. How can the learning principles practiced by video game designers be transferred to the design of learning situations in classroom environments?
2. What are the impacts of game design mechanics on student social and academic learning, especially on boys, that teachers perceive may be derived from using such a resource as the Avatar Academy with their students?

Methods and Research Design

This qualitative study investigated teacher perceptions of the handbook resource, Avatar Academy, for possible effectiveness in motivating learners, especially boys, to participate in classroom learning experiences. The resource outlines how teachers can incorporate an avatar-based classroom and learning goals management system in their classroom.

Sample and Population, Site, and Participant Selection

Because a convenience sample was used, and adherence to true random sampling was not performed, I have sacrificed some of the explanatory power of the research for feasibility (McMillan & Wergin, 2006).

Three teachers were selected for this study. Teacher 1 is a female specializing in Science for more than 15 years. Teacher 2 is a male with several years in long-term occasional (LTO) positions in junior and intermediate divisions. Teacher 2 is also particularly adept with technology and well-immersed in many other aspects of youth culture (i.e., graphic novel reader, toy/figurine collector, and experienced gamer). Teacher 3 is a female who has worked in the primary division for 5 years. These participants were selected based on convenience, as I have an established rapport with each teacher.

Data Collection

Teachers were provided with a copy of the *Avatar Academy* resource to read and review. Once participants had an opportunity to thoroughly review the resource, they were asked to complete a set of questions via e-mail. Teachers were asked to consider their male students specifically while responding. Examples of actual questions to be asked of teachers, also found in Appendix I in the Handbook, are:

Perceptions of teacher use in classroom:

What aspects of the avatar system appeal to you as a classroom teacher?

How could this resource be implemented in your own classroom?

Projected effectiveness of avatar system:

Why might your students enjoy the avatar progression tracking system?

What aspects of the avatar system would resonate best with students so as to foster extended engagement in learning activities?

Considerations for future improvements:

What aspects of the avatar system could be improved to foster classroom implementation?

What aspects of the avatar system could be improved to foster extended student engagement in learning activities?

Procedures

This project was conducted in three stages: (a) development of Avatar Academy, (b) Teacher Review and Feedback regarding Avatar Academy, and (c) Revision and Final Teacher Feedback.

Stage 1: Development of the Avatar Academy Resource.

In stage 1, game design elements and mechanics identified in the literature as appropriate teaching strategies for elementary grades, specifically those game-based playing strategies effective as a novel way to engage student participation in the classroom management aspects of instruction, were used to construct Avatar Academy, an avatar system that has been broken down into its distinct mechanics of operation and each has been adapted for suitable use in the classroom. These mechanics include, but are not limited to:

- Avatar/student progress mirroring: a mechanic in which the progress of student avatars progress through the game narrative in such a way as to mirror students' development and academic progress.

- Currency reward system: a mechanic that uses assessment and evaluation of student work to inform a points reward system, in which students are awarded with scaling currency rewards based on their academic performance.
- Purchasable items: a mechanic that acts as a sort of virtual shop for students to spend their currency in. The shop will have a large inventory of items (represented by physical play cards) students can choose from to purchase and apply to improve and modify their avatars' performance.
- Competitive gaming system: a mechanic that facilitates students to engage in competitive matches with each other's avatars. Students will face off, equipped with the various items they have acquired, in games that match skill and preparation to determine victors.

The resulting handbook resource for Avatar Academy consisted of a printed teacher guide that explains in detail how to implement the resource in the classroom.

Stage 2: Teacher Feedback on the Avatar Academy Resource.

In stage 2, a series of questions that participants responded to through e-mail was used to collect teachers' perceptions about the effectiveness of using the resource in classrooms. Specifically, to determine the applicability of such a resource in the classroom by practicing teachers, three teachers were provided with the resource and reported their perceptions as to the appropriateness of the resource in providing guidance in the possible implementation of the game in their own classrooms. The guiding questions are found under the Data Collection heading above. The resulting feedback was condensed, organized, and is presented in Table 1.

Table 1

Initial Teacher Feedback of Avatar Academy Resource

Classroom Implementation	Game Mechanics Explained	Improving Engagement
• Desire to see reward distribution guidelines flushed out, outlining distribution intervals and amounts • Need for paper based resources - black line masters for tracking points and items • Suggestion to narrow scope of reward spectrum to focus on collecting pets • Preferences for greater focus on meshing reward system to complement existing class routines (teachers won't have to dramatically change what they are doing to use it)	• Suggestion to include gameplay tutorial resources for students, to accompany teacher resources • Demonstration guidelines to better facilitate gameplay modelling when teaching students	• Better use of media (audio and visual) • Utilization of online resources • Design and create a catalogue of rewards • Card game – pets as collectible playing cards

Stage 3: Recursive Formative Evaluation and Final Teacher Feedback.

In stage 3, the teachers' responses from stage 2 were used to inform a revision of the handbook resource, *Avatar* Academy, both print and online. After the secondary development/revision of the resource, both the resource and questions were redistributed to teachers for a final review guided by the same questions as stage 2. The resulting feedback was condensed, organized, and is presented in Table 2 and Table 3.

Data Analysis

Qualitative responses were transcribed, and coded using an emergent coding process as described by Creswell (2008). Each unit of data was coded. As the coding labels emerged, the units of data were chunked into categories. This was completed by chunking the categories into an open number of initial trends patterns, and areas of commonality.

Ethical Considerations

This study followed the guiding ethnical principles of research, such as: respect of human dignity, respect for free and informed consent, respect for vulnerable persons, respect for privacy and confidentiality, respect for justice and inclusiveness, and balance of harm and benefit.

Teacher participants were not asked to implement the study, but merely provide feedback on the perceived impacts on student learning and/or classroom instruction. Therefore, no formal ethics review was conducted. This study will respect the rights of participants and ensure confidentiality by adhering to the guidelines and procedures

Table 2

Teacher Recommendations for Improvement of the Avatar Academy Resource

Classroom Implementation	Engagement and Immersion
• Potential for resource to become preoccupation to extent is becomes a distraction from class activities • Lesson plan bank with linked curriculum expectations would create a more readily implementable resource • Online or app based functionality of game to reduce card handling and potential for lost collections, also players could play from home or on the go	• Create game goals, framed as missions or quests, directly linked to curriculum expectations, that avatars must achieve • Students navigate avatars through a perpetual storyline using the skills and knowledge they gain in class • Online or app based functionality would facilitate additional access from home and on the go

Table 3

Teacher Perceptions of Avatar Academy Resource after Revisions

Classroom Implementation	Appeal to Students	Teaching soft skills
• Opportunities for alignment with curriculum • Opportunities for differentiated instruction • Facilitates incorporation of boys niche interests without having to become experts in boys' culture • Application of motivational mechanisms adaptable for use in any core subject area • Maintains focus on core content (curriculum) and other instructional goals • Potentially captures and sustains interest • Integrates well with existing assessment and evaluation data and processes and with other established classroom routines • Increases emphasis on assessment in the classroom • Opportunities to implement technology use in the classroom • Reward system promotes achievement • Scaling rewards promote personal improvement • Incentive for students to actively engage with learning goals and academic success criteria • Student avatars starting point for additional classroom activities	• Playing games is fun • Incorporates boys' schemas • Taps into boys interests and hobbies • Imaginative narratives • Extrinsic reward system parallel to those found in games • Instant and meaningful rewards • Interest sparked by potential opportunities for competition • Personal agency facilitated through providing reward choices • Customization of student collections enhances presence of choice and social differentiation • Complexity of game-play creates opportunities to exercise tactical skills during play and strategic planning while collecting • Compliments the magic and wonder of childhood • Rewarding effort reduces fear of failure • Constant sense of progression through reward feedback	• Many opportunities to develop skills necessary for being successful learners • Gives students opportunities to exercise personal responsibility • Assists students in developing good work habits • Assists students in developing personal decision making skills • Incentives provide context to give students a greater personal stake in their learning behaviours • Nuances of game-play creates opportunities for development of long-term decision-aking skills, in relation to planning and goal setting, when deciding how to build and optimize personal collections • Opportunities for students to communicate socially with others and have enriched discussions • Provides context for students to flex their imaginations

outlined by Brock University's Research Ethics Board. Teachers' names and identities were kept secure by using pseudonyms in this report.

Dissemination

The document will be submitted to the Brock University Digital Repository. It will also be made available electronically using a variety of Web 2.0 tools. Teachers will receive an electronic copy of this project.

CHAPTER FOUR: AVATAR ACADEMY HANDBOOK

The following chapter is the hard copy of the Avatar Academy handbook. This handbook is an instructional guide for teachers, outlining the classroom administration of the Avatar Academy resource. However, it represents only a partial component of the Avatar Academy resource. A large amount of the resource documentation and tools are located on Avatar Academy Online (2012).

Avatar Academy Online (2012) contains:

- A Students page that introduces and sets the groundwork for the Avatar Academy program
- A Game-play page that hosts student tutorials about how to play the Avatar Academy Game
- A Rewards page that catalogues the Companion and Enhancement playing cards students may acquire for use in the Avatar Academy Game
- A Teachers page containing all the black line masters required to administer the resource and an electronic copy of the print handbook and rules
- A M.R.P. page that outlines the academic work and justification behind the resource
- A Research page that links the resource to the work of other well-known researchers in the field of education and gaming

Avatar Academy

An Instructional Strategy to Enhance Motivation and Engagement

Table of Contents

Introduction

Before reading any further, I want to offer you the assurance that curriculum connections are found throughout this project. This resource is adaptable to many curriculum expectations, but Math, Science, and Language Arts are most obviously present.

Avatar Academy is a ground-breaking education-based student incentive system that can blend with any teacher's instructional delivery methods. The system is designed to motivate students to take a more active role in the classroom. Avatar Academy will accomplish this by acknowledging student's progress with rewards, and by using assessment and evaluation data as a benchmark to calculate a points-based reward system. Essentially, students earn points (called Jots) for completing work, and the points rewarded vary on the quality of student's work. Students can spend these Jots to acquire assets for a game.

The connection between motivation and engaged learners isn't a new one. In fact, it's been just one concept (of many) that commercial video games have executed with tremendous success. This project aims to capitalize on this opportunity. That's right, Avatar Academy uses the same mechanics that keep kids playing hours of games and transfers them into school classrooms, with the goal of creating a more engaging, contemporary, and rewarding learning environment for all students.

By setting aside a small amount of time each week for students to play a game, you create the value necessary to motivate student's to work *if* that work is rewarded with the ability to acquire in-game assets. Let's face it, school is a child's work, and nobody likes to work for free. Increased literacy and numeracy skills can be a poor incentive, or an abstract and alien concept to many young boys. If we start rewarding the work of the learner, as any good video game does, then we provide the incentives necessary to promote motivated learning.

The motivation enhancing incentives game mechanics exploit and that this work aims to capture and transfer to the classroom have been identified and explored by many researchers, such as Jane McGonigal (2010) and Seth Priebutsch (2010). They are:

- Appointment: students always have something to achieve, urgent obstacles that students need to overcome to achieve their goals.
- Feedback: effort and determination are rewarded, ongoing and consistent sense of progression, development of influence and status among peer groups.
- Social Fabric: peers share a sense of communal discovery, blissful productivity through collaboration.

Avatar Academy harnesses these elements to generate the same epic meaning children have previously associated only with commercial games (Jane McGonigal, 2010).

Avatars

The primary purpose of the Avatar is to provide students with a tool that helps motivate them to pursue positive actions and attitudes surrounding learning. It's also plain fun to take on an imaginary identity as you advance through an engaging storyline in a fictional landscape. One of the student's first tasks will be to create a background story and physical description of their avatar. Students will continue to contribute to the development of their avatar with the school work they complete. If students want their avatar to be powerful, this must be reflected in their school work to acquire the rewards necessary to do so. So, a student's academic identity is interwoven with their avatar's in-game identity. In other words, an avatar is the student's projected identity.

Avatar use is excellent for promoting goal-setting, self-reflection, and awareness of personal progress. By linking the avatar's progress to their own, students may be better able to grasp, value,

and pursue their own academic progress as a result. Avatars also allow students to learn by minimizing the personal risks and fears associated with being wrong. Students may take risks and experiment with learning identities in a way that reduces the personal consequences of "failure" and instead rewards effort, experimentation, perseverance, and all progress.

Rewards

Rewarding student work and performance with currency (Jots) provides the kind of immediate feedback required to foster a sense of accomplishment and progress. Jots are not an actual physical currency, think of them simply as points awarded based on student performance. Everyone likes being paid for their work, and stickers and smiley faces don't always cut it. The great thing about this system is that you, the teacher, can decide exactly how you wish to distribute the rewards to your students. You can reward students based on their overall classroom performance for each week or you can allocate rewards to specific tasks and assignments. Do you want to place a small amount of rewards on many tasks or a large amount on few or single tasks? Either option or a combination of the two is viable; the **Reward Schedule** (see Appendix E) breaks down the distribution of rewards on a weekly (sixteenths) and quarterly scale so that you know exactly how much (or how little) Jots to reward students for their work.

Avatar Academy

Reward Schedule

NA = Not Available

Week	Min Jots	Min Total	Max Jots	Max Total	Item Quality	Item Cost
week 1	10	100	10	140	green	10
week 2	20		30		blue	NA
week 3	30		40		purple	NA
week 4	40		60		legendary	NA
week 5	100	600	100	800	green	100
week 6	100		150		blue	100
week 7	200		250		purple	NA
week 8	200		300		legendary	NA
week 9	250	1000	350	1500	green	100
week 10	250		350		blue	200
week 11	250		400		purple	500
week 12	250		400		legendary	NA
week 13	300	2000	600	3500	green	400
week 14	400		800		blue	500
week 15	500		900		purple	600
week 16	800		1200		legendary	1000

Items

The large assortment of items, students can purchase with their Jots, ensures that there is always something more for students to achieve. It's also plain fun to collect, compare, and share collections of unique items you've acquired through hard work and diligence. As students accumulate Jots, they can use them to purchase various items to add to their personal collections and have their avatar use in-game. Items are collected in the form of **Companion Cards** and **Enhancement Cards** (see Appendix G) and will be stored in a portfolio. Companion Cards each have different animal and creature companions, and Enhancement Cards each have different items and objects that enhance the in-game performance of their avatar's companions. The following screenshots of the **Rewards** page at **Avatar Academy Online** (http://technolimits.blogspot.ca) demonstrate the interactive virtual catalogue that has been created for student viewing.

Figure 1. Companions: Interactive Prezi Catalogue

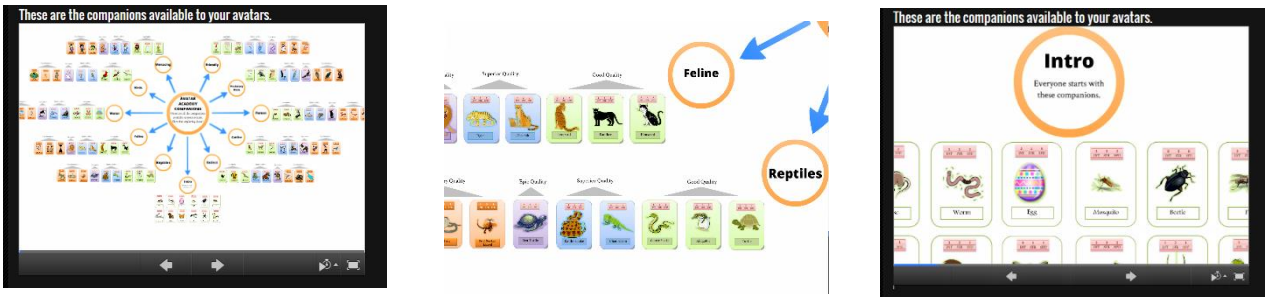


Figure 1. Companions: Interactive Prezi Catalogue (cont'd)

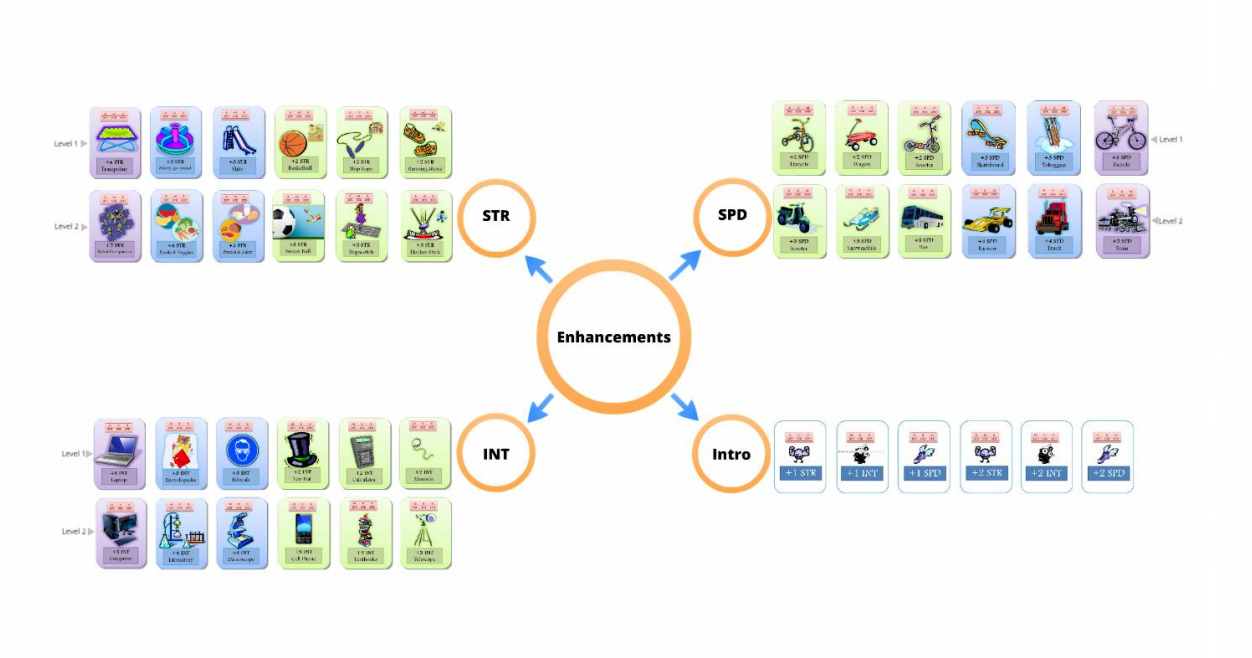


Figure 2. Enhancements: Interactive Prezi Catalogue

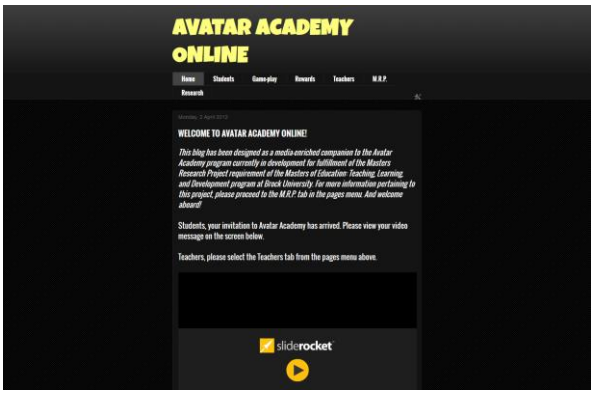
Avatar Academy Game

The Avatar Academy Game allows students to enjoy communal discovery and social prestige as they field their individually selected and hard earned item collections in a fun and engaging table-top card game. The game rules are straight forward (see below). You will need to set aside a small amount of time each week for students to play the game. In order to facilitate self-sufficiency in student game play the **Avatar Academy Online** resource has been developed. **Avatar Academy Online** has all the basic tutorials needed to learn how to play the game.

Getting Started

Step 1: The Invitation

In order to foster a sense of immersion and develop student engagement, teachers should begin Avatar Academy by delivering a formal oral invitation to students which directs them to watch the **Home** page video on **Avatar Academy Online**.



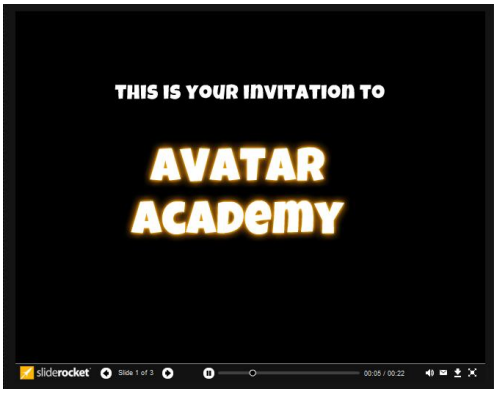


Figure 3. Avatar Academy Online Home page

Step Two: Creating the Avatar

Student's first task will be to create a profile for their Avatar. Direct students to the **Getting Started** brainstorming video on the **Students** page that introduces them to the creation process for their avatar.

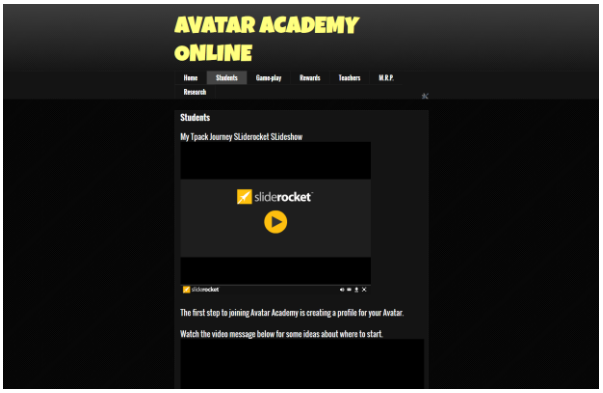


Figure 4. Students Page: Getting Started

Over the course of two lessons, one Language Arts lesson and one Arts lesson, students should create a biographical profile for their avatar and a physical depiction of their avatar. These will be stored in their Avatar Academy portfolio, in a duo tang or binder provided by the teacher. This process can be greatly enriched, while meeting other Language Arts curriculum expectations, by introducing the students to imaginative fictional literature (classics such as the Labyrinth, Where the Wild Things Are, and almost any fable, fairy tale, myth, or legend storybook) and other fictional media (the Neverending Story, the Dark Crystal, Harry Potter, Sword in the Stone, etc.) and examining them according to the curriculum criteria.

For completing their first task, students should be given their first reward: the **Introductory Card Set** for the Avatar Academy Game (see Appendix A). Following the acquisition of their first **Avatar Academy Game** assets (the **Introductory Card Set**), students should be

directed to watch the second video on the **Student** page of **Avatar Academy Online**, introducing them to the **Avatar Academy Game**.

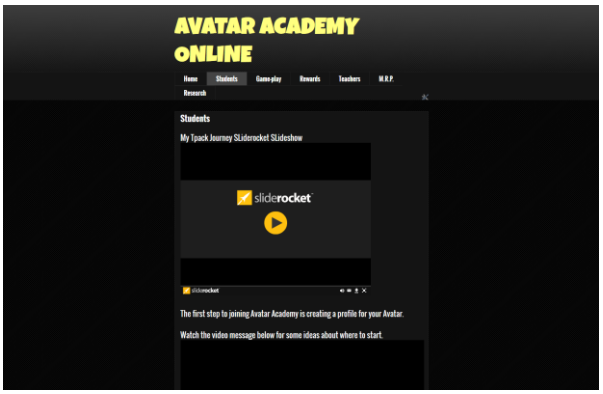
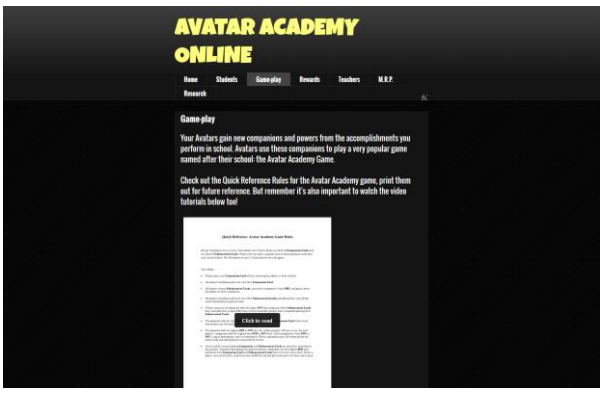


Figure 5. Students Page: Introduction to Avatar Academy Game

Step Three: Avatar Academy Game

Now that students have game assets, in the form of the Introductory Card Set, you can direct them to the **Game-play** page at **Avatar Academy Online**. Here, the first thing you will see is the Quick Start rules document.



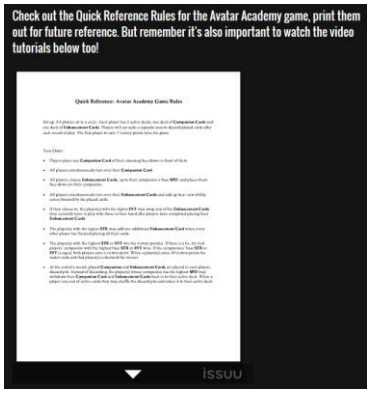


Figure 6. Game-Play Page: Quick Rules

The Avatar Academy Game rules are:

Set-up: 3-5 players sit in a circle. Each player has 2 active decks; one deck of **Companion Cards** and one deck of **Enhancement Cards**. Players will set aside a separate area to discard played cards after each round of play. The first player to earn 7 victory points wins the game.

Turn Order:

- Players place one **Companion Card** from their active deck face-down in front of them.
- All players simultaneously turn over their **Companion Card**.
- All players choose **Enhancement Cards**, up to their companion's base **SPD**, and places them face-down on their companion.
- All players simultaneously turn over their **Enhancement Cards** and add up their new ability scores boosted by the placed cards.
- If they choose to, the player(s) with the *highest* **INT** may swap any of the **Enhancement Cards** they currently have in play with those in their hand after players have completed placing their **Enhancement Cards**.
- The player(s) with the *highest* **STR** may add one additional **Enhancement Card** when every other player has finished placing all their cards.
- The player(s) with the highest **STR** or **INT** win the victory point(s). If there is a tie, the tied players' companion with the highest base **STR** or **INT** wins. If the companions' base **STR** or **INT** is equal, both players earn a victory point. When a player(s) earns 7 victory points the match ends and that player(s) is declared the winner
- At the end of a round, played **Companion** and **Enhancement Cards** are placed in each players discard pile. Instead of discarding, the player(s) whose companion has the highest **SPD** may withdraw their **Companion Card** and **Enhancement Cards** back in to their active deck. When a player runs out of active cards they may shuffle the discard pile and return it to their active deck.

Some classroom instruction, particularly modeling, would help students absorb the game rules. Take the time to learn the basic rules of the game and run some mock games for the entire class, or, and I recommend this route, explore and learn the game rules together as a class.

Before playing the game it may be helpful to view the Game-play tutorials at **Avatar Academy** Online. On the **Game-play** page there is an **Introductory Game-play** video for the students to view. This may also serve as a good review resource, as well as a "how do I do that again" resource on demand.

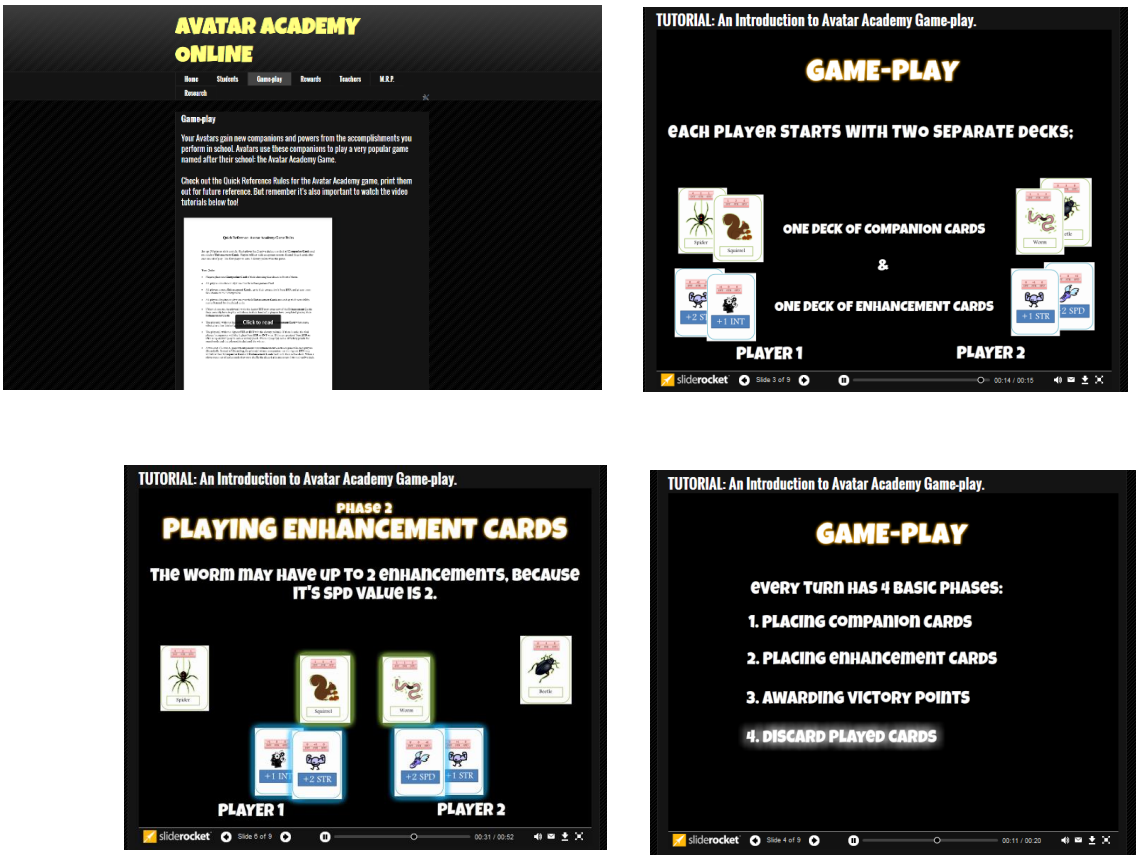


Figure 7. Game-Play Page: Introduction Tutorial

Teacher guidance will be important for the first few sessions of student game-play, but should be replaced swiftly by eager pears ready to assist and apply their developing expertise. Once students

have been given the opportunity to play the game using basic rules, and the teacher feels students have a firm grasp on game-play, introduce the **Advanced Game-play** video, and Special Rules therein, from **Avatar Academy Online**. Remember, while the game may appear complex to many adults, its relative complexity is similar to many popular children's games.

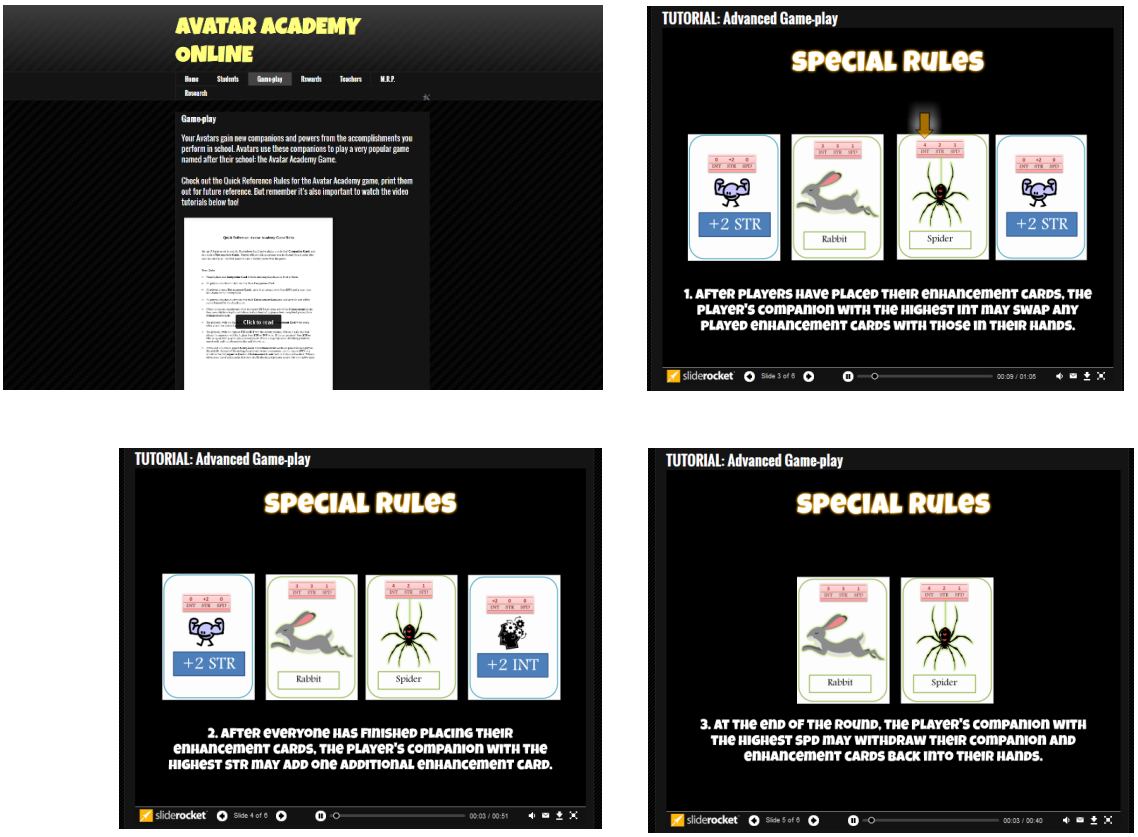


Figure 7. Game-Play Page: Advanced Tutorial

Step Four: Administration of Rewards and Student Transactions

When your students' understanding of game-play is established, the teacher's role in **Avatar Academy** becomes one of administration. Based on your assessment and evaluation of student work and performance you will reward appropriate amounts of Jots on a weekly basis (see Appendix E: Reward Schedule). You will also coordinate weekly allotments of time for students to

spend their Jots on items and play the **Avatar Academy Game**. Simply follow the Avatar Academy Reward Schedule (Appendix E) and track students' progress and rewards using the Companion Tracking, Enhancement Tracking, and Student Transaction Ledger black line masters (Appendix F, G, and H).

Teacher Resources

The **Teacher** page on **Avatar Academy Online** has a variety of resources to support educators implementing **Avatar Academy** in their classroom.

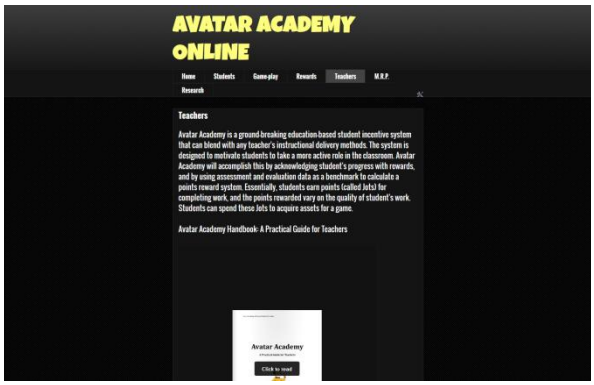


Figure 8. Teacher Page

The **Avatar Academy** handbook resource is available in a downloadable printer-friendly PDF format. There are also a variety of black line master administration resources. Such as the Reward Schedule, Companion Tracker, Enhancement Tracker, and Student Transaction Ledger.

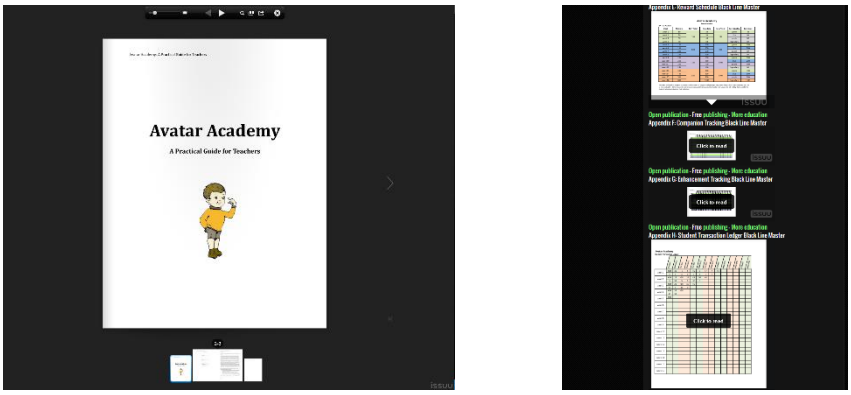


Figure 9. Teacher Page: Handbook and Black Line Masters

The entire collection of cards to play the game is also available for download in a printer friendly PDF format. Everything you need to execute Avatar Academy in the classroom is available on the **Teacher** page of **Avatar Academy Online.**

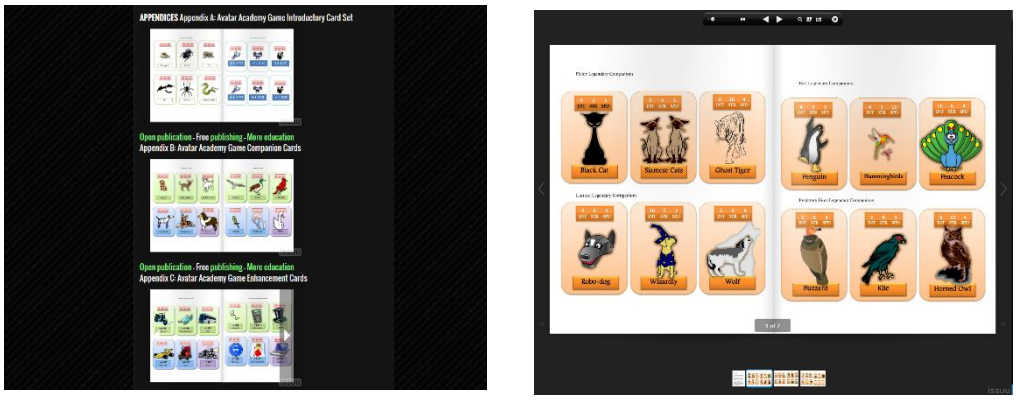


Figure 10. Teacher Page: Companion and Enhancement Print Resources

Research

Parents, educators, and students might also benefit from a glance at the research discourses surrounding games and learning. The **Research** page on **Avatar Academy Online** provides a variety of media and text based resources discussing games and education for curious viewers.

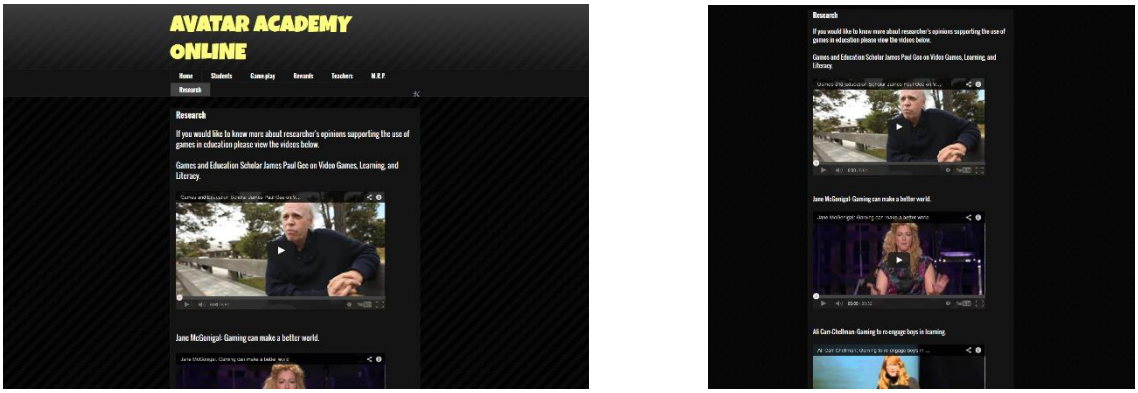


Figure 11. Research Page: Video Resources

A Final Word

Teachers are experts at adapting resources to match their teaching style and their student's learning needs. Avatar Academy is not an exception, the tools and resources are at your disposal to administer as you see fit. The most important thing about this resource is to utilize it in a way that is fun and enjoyable for your students and manageable for teachers.

Resources

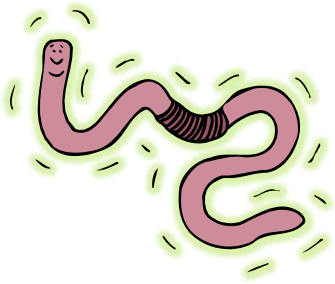
Contents

Introductory Cards: Companions

2	1	0
INT	STR	SPD

Egg

1	1	2
INT	STR	SPD



Worm

1	2	2
INT	STR	SPD

Mouse

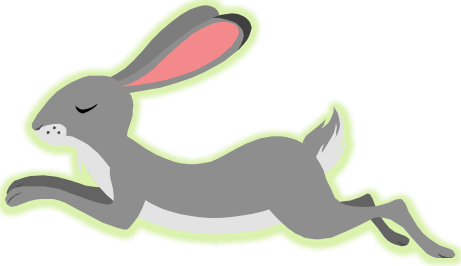
3	1	1
INT	STR	SPD

Butterfly

1	2	4
INT	STR	SPD

Squirrel

3	3	1
INT	STR	SPD



Rabbit

Introductory Cards: Companions

2	1	1
INT	STR	SPD

Mosquito

0	3	0
INT	STR	SPD

Beetle

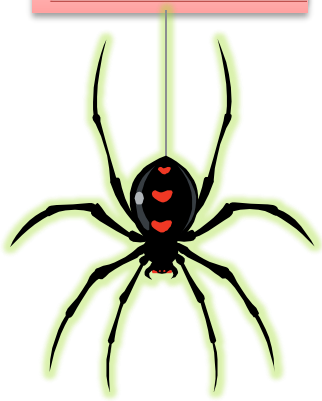
3	1	1
INT	STR	SPD

Fly

2	2	2
INT	STR	SPD

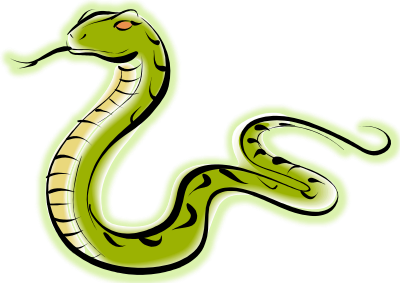
Bat

4	2	1
INT	STR	SPD



Spider

3	2	2
INT	STR	SPD



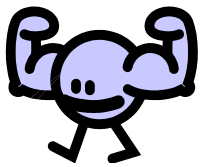
Garter

Introductory Cards: Enhancements

0	0	+1
INT	STR	SPD

+1 SPD

0	+1	0
INT	STR	SPD



+1 STR

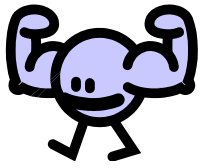
+1	0	0
INT	STR	SPD

+1 INT

0	0	+1
INT	STR	SPD

+1 SPD

0	+1	0
INT	STR	SPD



+1 STR

+1	0	0
INT	STR	SPD

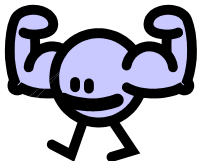
+1 INT

Introductory Cards: Enhancements

0	0	+1
INT	STR	SPD

+1 SPD

0	+1	0
INT	STR	SPD



+1 STR

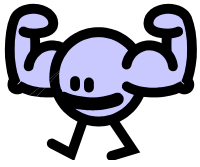
+1	0	0
INT	STR	SPD

+1 INT

0	0	+1
INT	STR	SPD

+1 SPD

0	+1	0
INT	STR	SPD



+1 STR

+1	0	0
INT	STR	SPD

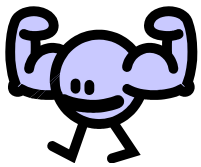
+1 INT

Introductory Cards: Enhancements

0	0	+2
INT	STR	SPD

+2 SPD

0	+2	0
INT	STR	SPD



+2 STR

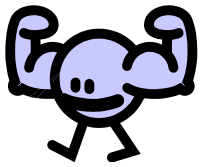
+2	0	0
INT	STR	SPD

+2 INT

0	0	+2
INT	STR	SPD

+2 SPD

0	+2	0
INT	STR	SPD



+2 STR

+2	0	0
INT	STR	SPD

+2 INT

Companion Cards: Feline

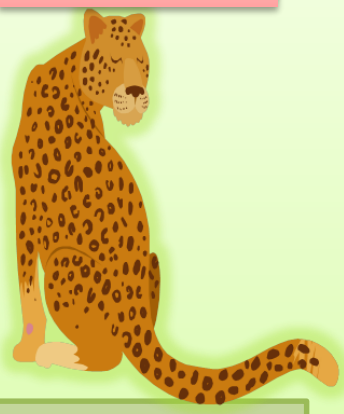
3	1	4
INT	STR	SPD

Housecat

2	2	4
INT	STR	SPD

Panther

3	3	4
INT	STR	SPD



Leopard

3	2	7
INT	STR	SPD

Cheetah

3	4	4
INT	STR	SPD

Tiger

3	7	4
INT	STR	SPD

Lion

Companion Cards: Canine

2	1	3
INT	STR	SPD

Puppy

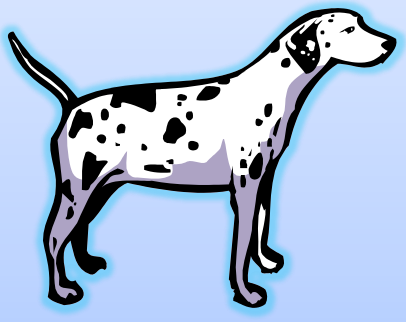
2	1	5
INT	STR	SPD

Chihuahua

4	2	5
INT	STR	SPD

Jack Russell

3	3	4
INT	STR	SPD



Dalmatian

5	4	4
INT	STR	SPD

Shepherd

5	4	5
INT	STR	SPD

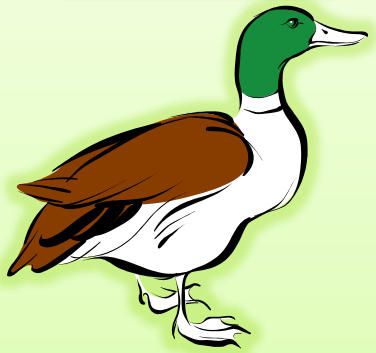
Collie

Companion Cards: Birds

2	1	4
INT	STR	SPD

Seagull

4	1	4
INT	STR	SPD



Duck

5	1	5
INT	STR	SPD

Cardinal

5	1	5
INT	STR	SPD

Budgie

6	2	4
INT	STR	SPD

Flamingo

7	3	4
INT	STR	SPD

Swan

Companion Cards: Predatory Birds

4	1	2
INT	STR	SPD

Snow Owl

1	3	5
INT	STR	SPD

Vulture

4	1	5
INT	STR	SPD

Owl

2	4	5
INT	STR	SPD

Eagle

4	2	6
INT	STR	SPD

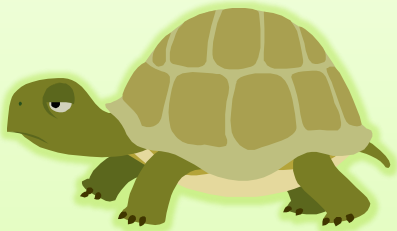
Falcon

5	4	5
INT	STR	SPD

Hawk

Companion Cards: Reptiles

3	3	1
INT	STR	SPD

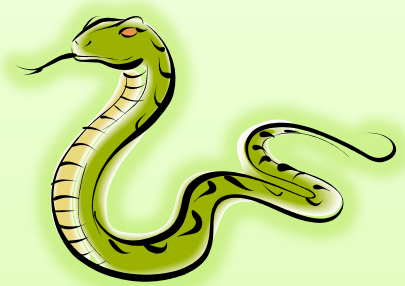


Turtle

4	3	2
INT	STR	SPD

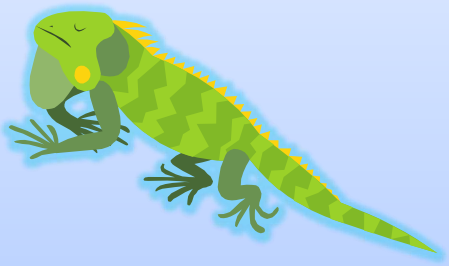
Alligator

5	3	2
INT	STR	SPD



Garter Snake

6	1	5
INT	STR	SPD



Chameleon

5	3	4
INT	STR	SPD

Rattle-snake

7	2	5
INT	STR	SPD

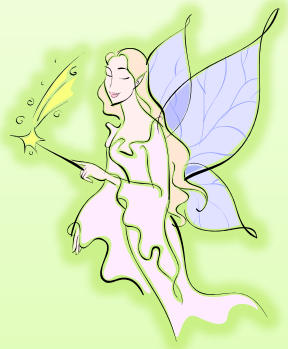
Sea Turtle

Companion Cards: Friendly

5	1	1
INT	STR	SPD

Gnome

5	1	3
INT	STR	SPD

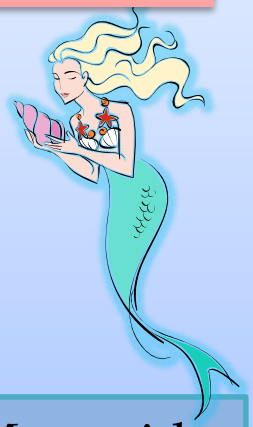


Fairy

1	6	4
INT	STR	SPD

Knight

4	4	4
INT	STR	SPD

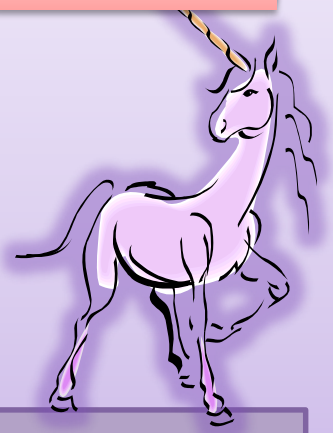


Mermaid

7	1	5
INT	STR	SPD

Wizard

6	3	6
INT	STR	SPD



Unicorn

Companion Cards: Menacing

2	1	5
INT	STR	SPD

Leprechaun

1	6	2
INT	STR	SPD

Ghost

1	5	4
INT	STR	SPD

Troll

2	7	2
INT	STR	SPD

Werewolf

6	3	3
INT	STR	SPD

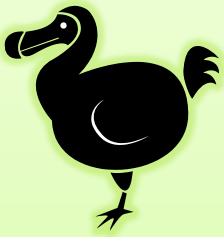
Witch

2	7	5
INT	STR	SPD

Dragon

Companion Cards: Extinct

1	1	6
INT	STR	SPD

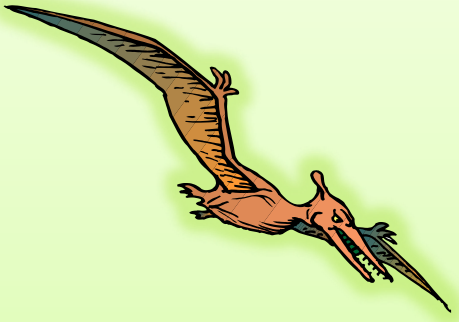


Dodo

1	5	3
INT	STR	SPD

Sabretooth

1	2	7
INT	STR	SPD

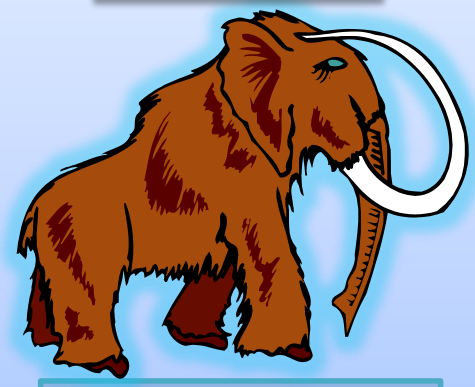


Pterodactyl

2	7	3
INT	STR	SPD

Stegosaurus

4	6	2
INT	STR	SPD



Wooly

1	7	6
INT	STR	SPD

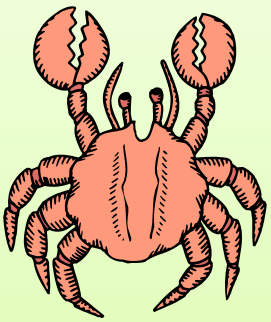
T-REX

Companion Cards: Extinct

5	1	2
INT	STR	SPD

Goldfish

1	5	3
INT	STR	SPD

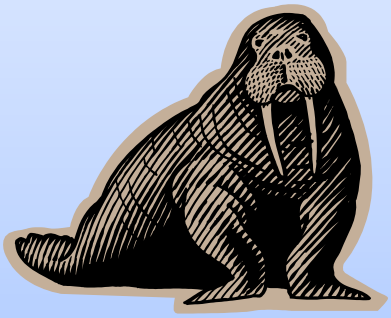


Crab

6	2	2
INT	STR	SPD

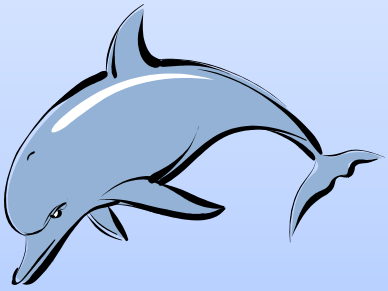
Octopus

3	7	1
INT	STR	SPD



Walrus

5	2	6
INT	STR	SPD



Dolphin

5	5	4
INT	STR	SPD

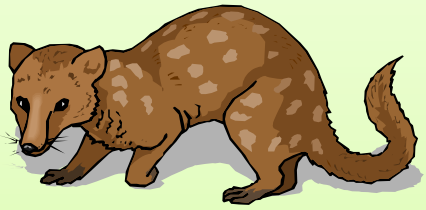
Orca

Companion Cards: Forest

1	1	7
INT	STR	SPD

Chipmunk

1	3	5
INT	STR	SPD

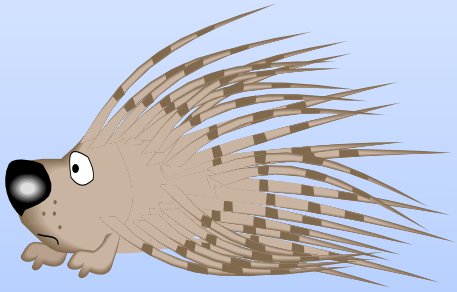


Possum

1	3	6
INT	STR	SPD

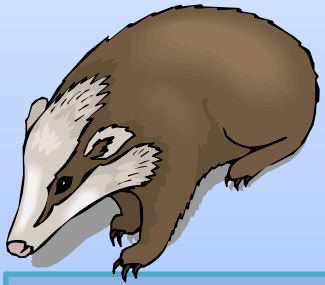
Skunk

6	3	1
INT	STR	SPD



Porcupine

2	6	4
INT	STR	SPD



Badger

5	5	5
INT	STR	SPD

Black Bear

Enhancement Cards: Speed

0	0	+2
INT	STR	SPD

+2 SPD
Wagon

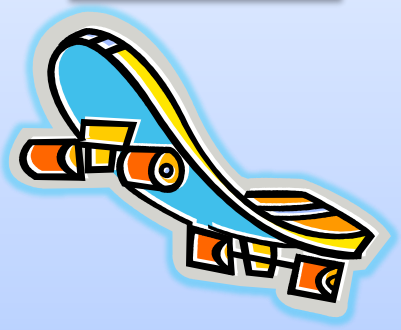
0	0	+2
INT	STR	SPD

+2 SPD
Tricycle

0	0	+2
INT	STR	SPD

+2 SPD
Scooter

0	0	+3
INT	STR	SPD



+3 SPD
Skateboard

0	0	+3
INT	STR	SPD

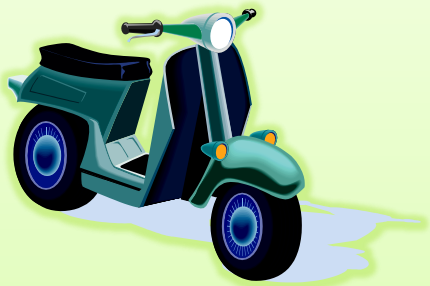
+3 SPD
Toboggan

0	0	+4
INT	STR	SPD

+4 SPD
Bicycle

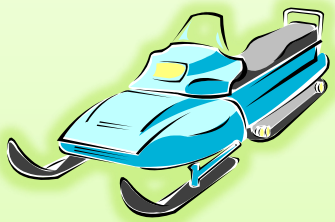
Enhancement Cards: Speed

0	0	+3
INT	STR	SPD



+3 SPD
Scooter

0	0	+3
INT	STR	SPD



+3 SPD
Snowmobile

0	0	+3
INT	STR	SPD

+3 SPD
Bus

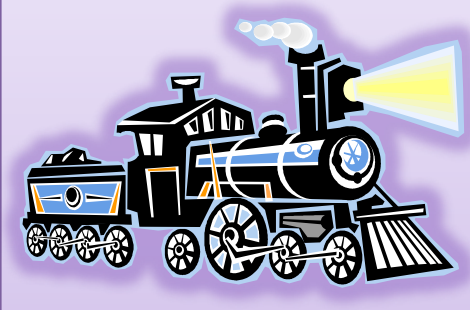
0	0	+4
INT	STR	SPD

+4 SPD
Racecar

0	0	+4
INT	STR	SPD

+4 SPD
Truck

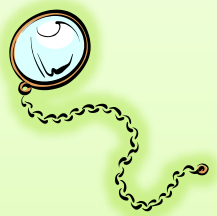
0	0	+5
INT	STR	SPD



+5 SPD
Train

Enhancement Cards: Intelligence

+2	0	0
INT	STR	SPD



+2 INT
Monocle

+2	0	0
INT	STR	SPD

+2 INT
Calculator

+2	0	0
INT	STR	SPD

+2 INT
Top Hat

+3	0	0
INT	STR	SPD

+3 INT
Bifocals

+3	0	0
INT	STR	SPD

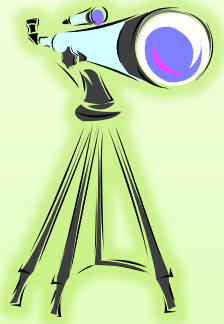
+3 INT
Encyclopedi

+4	0	0
INT	STR	SPD

+4 INT
Laptop

Enhancement Cards: Intelligence

+3	0	0
INT	STR	SPD



+3 INT
Telescope

+3	0	0
INT	STR	SPD

+3 INT
Textbooks

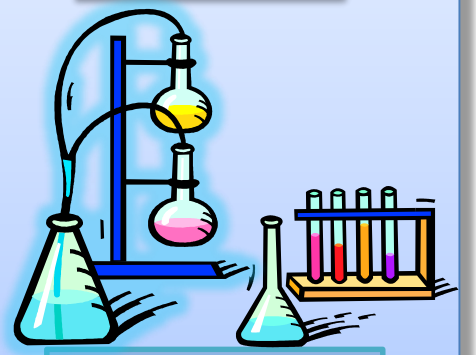
+3	0	0
INT	STR	SPD

+3 INT
Cell Phone

+4	0	0
INT	STR	SPD

+4 INT
Microscope

+4	0	0
INT	STR	SPD



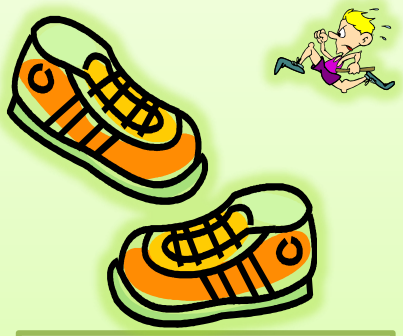
+4 INT
Laboratory

+5	0	0
INT	STR	SPD

+5 INT
Computer

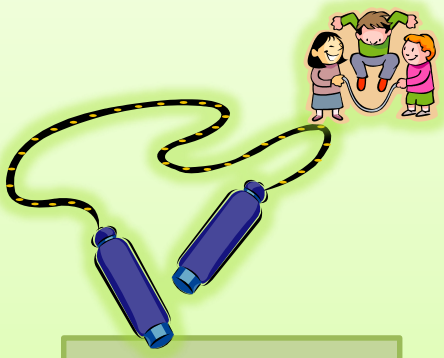
Enhancement Cards: Strength

0	+2	0
INT	STR	SPD



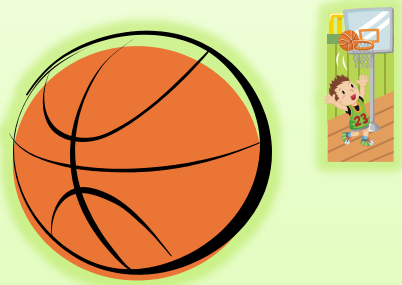
+2 STR
Running Shoes

0	+2	0
INT	STR	SPD



+2 STR
Skip Rope

0	+2	0
INT	STR	SPD



+2 STR
Basketball

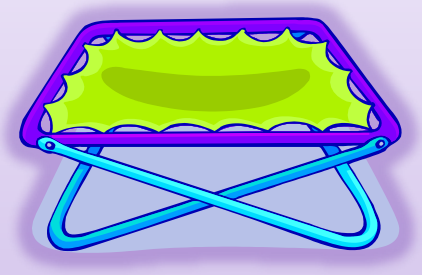
0	+3	0
INT	STR	SPD

+3 STR
Slide

0	+3	0
INT	STR	SPD

+3 STR
Merry-go-round

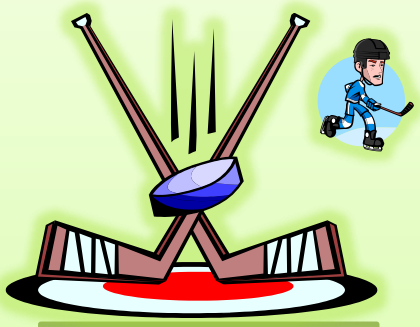
0	+4	0
INT	STR	SPD



+4 STR
Trampoline

Enhancement Cards: Strength

0	+3	0
INT	STR	SPD



+3 STR
Hockey

0	+3	0
INT	STR	SPD

+3 STR
Hopscotch

0	+3	0
INT	STR	SPD

+3 STR
Soccer Ball

0	+4	0
INT	STR	SPD

+4 STR
Protein & Dairy

0	+4	0
INT	STR	SPD

+4 STR
Fruits & Veggies

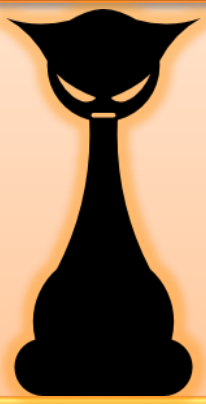
0	+5	0
INT	STR	SPD

+5 STR
Robot Companion

Companion Cards: Legendary

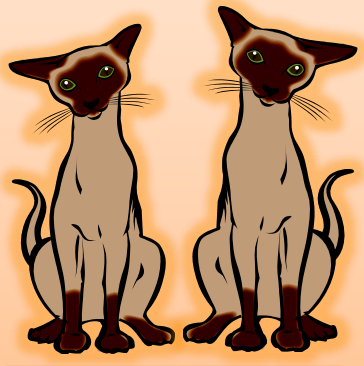
Legendary Cards: Feline

8 INT 3 STR 5 SPD



Black Cat

9 INT 4 STR 5 SPD



Siamese

6 INT 10 STR 4 SPD

Ghost Tiger

Legendary Cards: Canine

4 INT 8 STR 4 SPD

Robo-dog

10 INT 5 STR 3 SPD

Wizardly

6 INT 6 STR 8 SPD

Wolf

Companion Cards: Legendary

Legendary Cards: Birds

Legendary Cards: Predatory Birds

Companion Cards: Legendary

Legendary Cards: Reptile

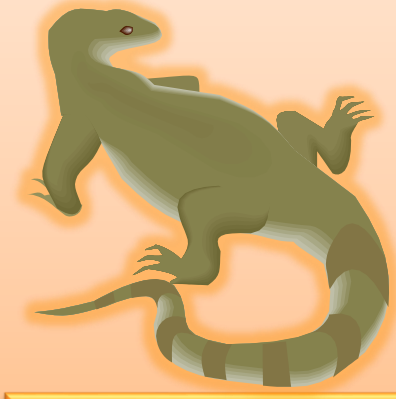
3 INT	5 STR	8 SPD

Frill Necked Lizard

6 INT	8 STR	4 SPD

Cobra

5 INT	12 STR	3 SPD



Komodo Dragon

Legendary Cards: Friendly

6 INT	9 STR	1 SPD

Snowman

3 INT	10 STR	5 SPD

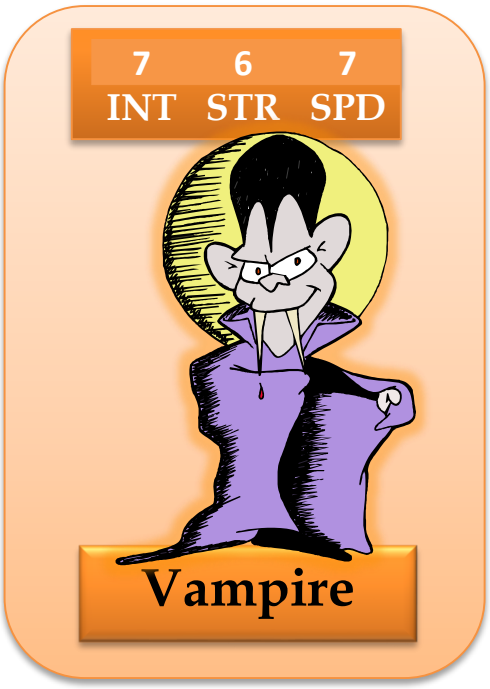
Centaur

10 INT	7 STR	3 SPD

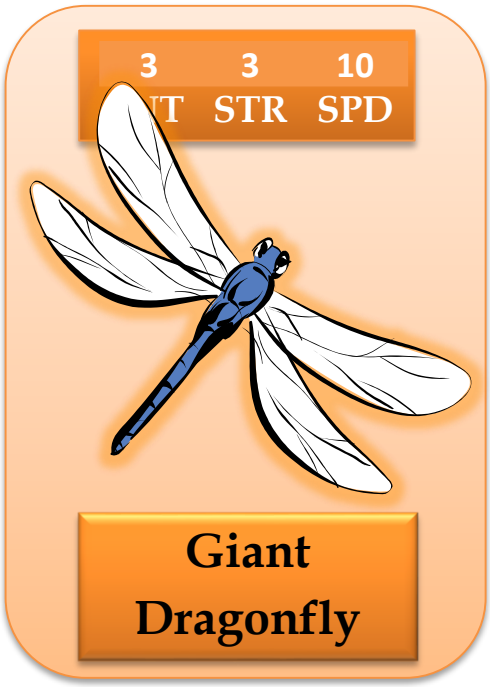
Phoenix

Companion Cards: Legendary

Legendary Cards: Menacing



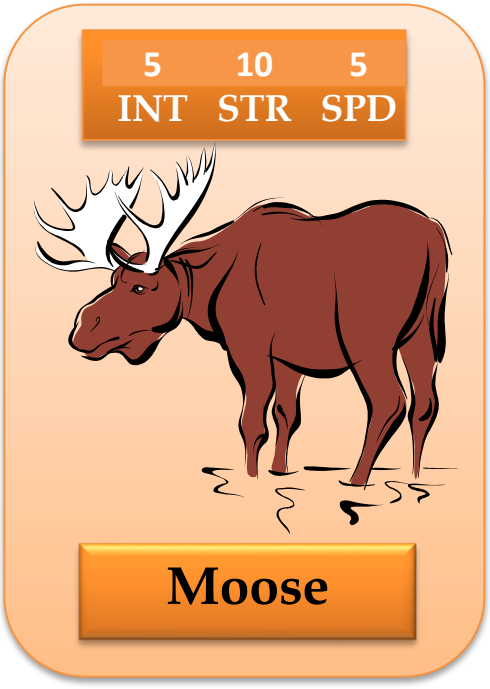
Legendary Cards: Extinct



Companion Cards: Legendary

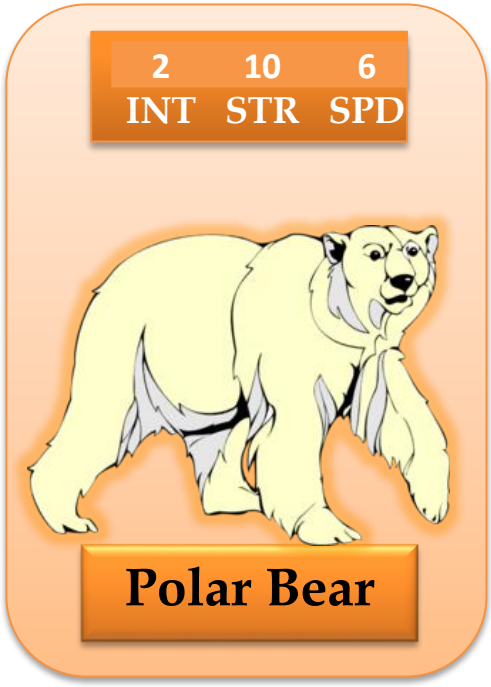
Legendary Cards: Water

Legendary Cards: Forest



Companion Cards: Legendary

Legendary Cards: Forest



Legendary Cards: Blank Templates

Avatar Academy

Reward Schedule

NA = Not Available

Week	Min Jots	Min Total	Max Jots	Max Total	Item Quality	Item Cost
week 1	10	100	10	140	green	10
week 2	20		30		blue	NA
week 3	30		40		purple	NA
week 4	40		60		legendary	NA
week 5	100	600	100	800	green	100
week 6	100		150		blue	100
week 7	200		250		purple	NA
week 8	200		300		legendary	NA
week 9	250	1000	350	1500	green	100
week 10	250		350		blue	200
week 11	250		400		purple	500
week 12	250		400		legendary	NA
week 13	300	2000	600	3500	green	400
week 14	400		800		blue	500
week 15	500		900		purple	600
week 16	800		1200		legendary	1000

This reward schedule is designed to provide a realistic sense of progression by incorporating an escalting scale of reward currency and tiers of item availability. Items increase in cost with each subsequent tier so as not to trivialize their value while still making them available for students who wish to increase their collection.

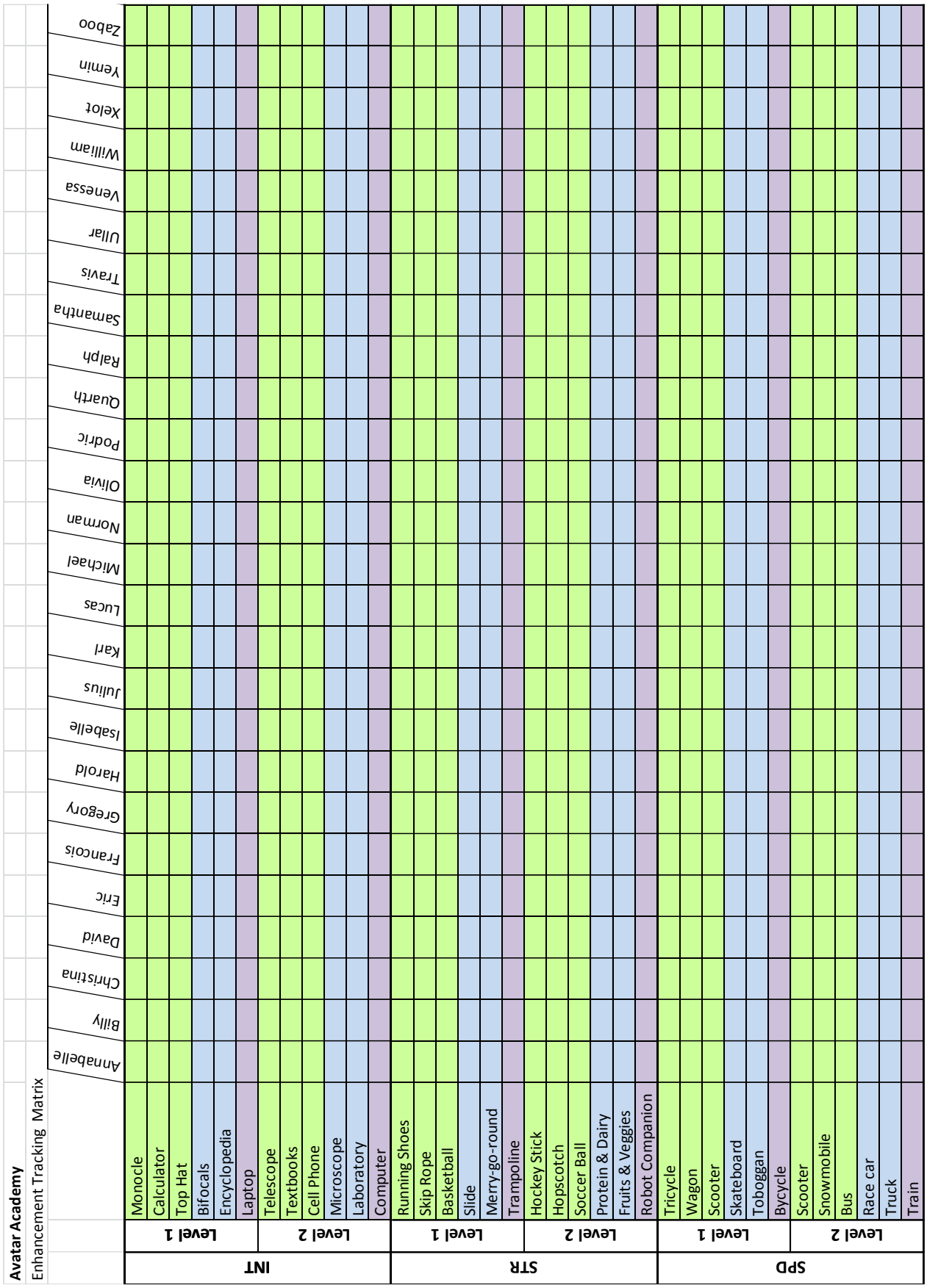
Companion Tracker

Avatar Academy

Companion Tracking Matrix

		Annabelle	Billy	Christina	David	Eric	Francois	Gregory	Harold	Isabelle	Julius	Karl	Lucas	Michael	Norman	Olivia	Podric	Quarth	Ralph	Samantha	Travis	Ullar	Venessa	William	Xelot	Yemin	Zaboo
Feline	Housecat																										
	Panther																										
	Leopard																										
	Cheetah																										
	Tiger																										
	Lion																										
Canine	Puppy																										
	Chihuahua																										
	Jack Russell																										
	Dalmation																										
	Shepard																										
	Collie																										
Birds	Seagull																										
	Duck																										
	Cardinal																										
	Budgie																										
	Flamingo																										
	Swan																										
Predatory Birds	Snow Owl																										
	Vulture																										
	Owl																										
	Eagle																										
	Falcon																										
	Hawk																										
Reptile	Turtle																										
	Alligator																										
	Garter Snake																										
	Chameleon																										
	Rattle-snake																										
	Sea Turtle																										
Friendly	Gnome																										
	Fairy																										
	Knight																										
	Mermaid																										
	Wizard																										
	Unicorn																										
Menacing	Leprechaun																										
	Ghost																										
	Troll																										
	Werewolf																										
	Witch																										
	Dragon																										
Extinct	Dodo																										
	Sabretooth																										
	Pterodactyl																										
	Stegosaurus																										
	Wooly Mammoth																										
	T-Rex																										
Water	Goldfish																										
	Crab																										
	Octopus																										
	Walrus																										
	Dolphin																										
	Orca																										
Forest	Chipmunk																										
	Possum																										
	Skunk																										
	Porcupine																										
	Badger																										
	Black Bear																										

Enhancement Tracker



Student Transaction Ledger

Avatar Academy

Steudent Transaction Ledger

	Student	New Total	Student	New Total	Student	New Total	Student	New Total	Student	New Total	Student	New Total
WEEK 1												
WEEK 2												
WEEK 3												
WEEK 4												
WEEK 5												
WEEK 6												
WEEK 7												
WEEK 8												
WEEK 9												
WEEK 10												
WEEK 11												
WEEK 12												
WEEK 13												
WEEK 14												
WEEK 15												
WEEK 16												

Avatar Academy Game Rules

Set-up: 3-5 players sit in a circle. Each player has 2 active decks; one deck of **Companion Cards** and one deck of **Enhancement Cards**. Players will set aside a separate area to discard played cards after each round of play. The first player to earn 7 victory points wins the game.

Turn Order:

- Players place one **Companion Card** from their active deck face-down in front of them.
- All players simultaneously turn over their **Companion Card**.
- All players choose **Enhancement Cards**, up to their companion's base **SPD**, and places them face-down on their companion.
- All players simultaneously turn over their **Enhancement Cards** and add up their new ability scores boosted by the placed cards.
- If they choose to, the player(s) with the *highest* **INT** may swap any of the **Enhancement Cards** they currently have in play with those in their hand after players have completed placing their **Enhancement Cards**.
- The player(s) with the *highest* **STR** may add one additional **Enhancement Card** when every other player has finished placing all their cards.
- The player(s) with the highest **STR** or **INT** win the victory point(s). If there is a tie, the tied players' companion with the highest base **STR** or **INT** wins. If the companions' base **STR** or **INT** is equal, both players earn a victory point. When a player(s) earns 7 victory points the match ends and that player(s) is declared the winner.
- At the end of a round, played **Companion** and **Enhancement Cards** are placed in each players discard pile. Instead of discarding, the player(s) whose companion has the highest **SPD** may withdraw their **Companion Card** and **Enhancement Cards** back in to their active deck. When a player runs out of active cards they may shuffle the discard pile and return it to their active deck.

CHAPTER FIVE: SUMMARY AND CONCLUSION

The purpose of this study was to develop a resource teachers could use in the classroom to simulate the same engagement and motivational qualities fostered by video games: a classroom resource that would bring game mechanics into the heart of the classroom while simultaneously capturing the imagination of young boys by embracing their personal interests. Avatar Academy is designed to address the disparity between boys' cultural interests and the design of contemporary school work, by embracing game mechanics linked to extended engagement. The Avatar Academy Handbook and Avatar Academy Online resources were designed, developed, and distributed to several practicing teachers who reviewed the handbook and provided feedback. Guided by the interview questions found in Chapter Three, these questions were designed to gauge teachers' perceptions surrounding the possible classroom use of the Avatar Academy resource to foster motivation and extended engagement for students as they participated in classroom activities. This section of the study will summarize, discuss, and draw implications from their responses.

Summary

This study purported to draw on the perceptions of educational practitioners to gauge the potential effectiveness of the handbook, Avatar Academy, a game based-resource designed to assist teachers in the implementation of game-based motivational strategies in the classroom. Three teachers received electronic copies of the Avatar Academy resources to review and asked to respond to a set of questions about the resource. Responses formed the basis for an early revision of the resource. A second set of responses to the revised resource and were gathered through e-mail, reviewed, and coded using an emergent coding process, chunking data into categories and consolidating

to reduce overlap. The final areas of interest that emerged were used in the Discussion section of this chapter.

Discussion

Teachers identified four principal areas of strength of the Avatar Academy resource and they form the basis for the subsequent discussion subsections. The strengths were:

- Importance of potential impact of game based strategy Avatar Academy adds to classroom learning environment.
- Appeal to the culture of young boys, sparks student interest and enthusiasm. Competitive and progressive gaming elements have potential for fostering extended engagement.
- Integrating motivational tools with existing classrooms instruction and assessment practices.
- Opportunities to teach implicit skills, such as independence, responsibility, and decisiveness. Facilitates students' exercising their imagination and the wonder of childhood.
- Conducive to differentiated instruction and media enriched learning, with a strong emphasis on positive reinforcement and rewarding success.

Importance of Game Based Strategy

Avatar Academy's ability to taps into boys' schemas and hobbies surrounding games was identified as very important. For example, the use of complex narrative and imagination that Jarvis (2007) identifies as specifically found in the play of boys was listed among the cornerstone strengths of Avatar Academy according to practicing

classroom teachers. The Avatar Academy Game conveys, even if only in the imagination, stories of dangerous conflicts and heroic actions that young boys prefer (Maccoby, 2000). Ultimately, the use of an avatar mechanic also facilitates the presentation of context for magical thinking and fantasy play that Paley (2004) encourages teachers to utilize to catch their young students attention and wonder. Teachers also identified these opportunities for imaginative play as integral components of student's personal growth.

By focusing the interactivity between Avatar Academy and students on student achievement, the resource is able to capitalize on game mechanics' general impact of reducing the cost of failure (Pellegrini et al., 2004). Teachers pointed out, that by reducing the risks associated with failure, students' capacity for exercising personal responsibility and decisiveness are more readily practiced in the classroom. More than that, teachers identified rewarding success as one of the chief motivating elements in their own teaching practices, noting that students love achievement and the resource enhances teachers' ability to acknowledge student achievement through the reward system. Furthermore, because the avatar progress mirrors the students' progress, this game mechanic diminishes the distinction between learning and playing by associating the students' own learning achievements with their avatars achievements in the game world, as such learning becomes part of the game (Gee, 2004).

The tiered reward system of Avatar Academy which places reward availability on an escalating release schedule ensures that at any time of the year, and regardless of a student's individual progress, there is always something more to achieve. This sense of appointment, of obstacles to overcome and goals to achieve, is a crucial component in the success of games that has been identified by researchers as a mechanic suitable for use in

school classrooms (McGonigal, 2010; Priebutsch, 2010). This has the added bonus of also creating the ongoing and consistent sense of progression that is also identified by McGonigal and Priebutsch as appropriate for enhancing learning experiences in the class. The constant drive to accomplish goals to acquire rewards and the consistent sense of progression that accompanies the reward process also creates opportunities for educators to strengthen the social fabric of the class by enhancing the sense of communal discovery and collaboration as new tiers of rewards are revealed when the class achieves scholastic benchmarks (McGonigal, 2010; Priebutsch, 2010). Additional opportunities to enhance the social fabric of the classroom using game mechanics embedded in the resource are students' options to uniquely distinguish their own collections from their peers and the ability to apply their own unique choices in friendly competition with each other. These customization and differentiation options empower students to make decisions that are distinct from their peers and a source of personal pride.

Strengths of Avatar Academy

At face value, the Avatar Academy resource was well-received by teachers because of the notion of fun it could add to classrooms. Teachers went on to propose that students enjoy being challenged and that Avatar Academy accomplishes this during play, but also adds playfully challenging stakes to students' work as they pursue greater rewards and recognition.

Teachers identified opportunities to create lessons using the avatar character and Avatar Academy world. For example, teachers described envisioning lessons that could use the Avatar Academy avatar character and world as a context to hook students into learning activities in core subject areas. The ability to adapt game content and themes to

help teachers deliver instructional goals was identified as one of the resources key strengths. Additionally, teachers identified many curriculum opportunities within the game, especially Math, despite not being mapped out in the resource.

Choice is a powerful motivator in the class, and giving students the agency to make distinct choices in their academic work was a favorable option according to teachers. Avatar Academy shapes and delivers choices about how students execute classroom work to achieve in game goals through acquiring rewards that scale with the quality of their work. These choices extend to how students will distinguish their personal collections and in game strategy. By giving students these choices, teachers can increase students' personal stake in learning, which can act as the catalyst for the creation of learning goals and implementation of personal assessment strategies. Giving students a platform for making these choices were highlighted by teachers as excellent opportunities for teaching students about responsibility and decisiveness.

Teachers also identified Avatar Academy's use of existing classroom routines, in particular the use of existing assessment and evaluation data as a primary means of determining reward distribution, as a key component in the resources eligibility for classroom implementation. The increased emphasis on assessment this resource requires also acts as an incentive for teachers to more closely monitor and moderate students' academic progress.

The complex narrative of an avatar's progress, as it becomes equipped with a wide array of character enhancing items through Companion and Enhancement Cards, mirrors a student's own achievements and progress in class. Teachers believed this would

facilitate opportunities to make important connections between their avatars' progress and students' development of important academic knowledge and skills.

The complex tactical application of card collecting choices captures the uniquely appealing aspects of many games and exploits them as a motivational tool for improving academic performance. Students not only have to plan and select game assets for accomplishing particular strategies, but they must match their own strategic choices against peer opponents. Competition was another element of game play that teachers believed would translate well to motivating students, especially young boys. Teachers identified these nuances of game play, strategic thinking, and tactical competition as opportunities to promote higher order thinking in a way that is fun, enjoyable, and rewarding to many students. This type of advanced tactical competitive thinking is at the heart of video games, and a key to their success in engaging and sustaining young boys' interest and imagination outside of school.

Revisions Based on Teacher Feedback

The teachers responded that the resource would require a more robust set of resources and greater direction for how to implement the resource in the classroom was required. As such the necessary black line masters required to track student rewards, transactions, and collections were created. There was also an entire catalogue of Companion Card and Enhancement Card game assets created, enough to populate half a school year (16 weeks) worth of reward distribution. Following the recommendations of teachers, the game assets were designed with reduced scope, limiting them to pet and enhancement item streams. Each stream was given specific in-game functionality to provide a greater depth of collectable options and tactical choices. As a result of teacher

feedback, Avatar Academy is now a ready to implement in class game based resource for teachers.

Teachers also recommend the Avatar Academy resource take on a more focused role in the classroom as its initial design seemed unrealistic to create for the scope of this project. As such, any enriched accompanying storyline was abandoned as a resource component. This was done for feasibility, and because this was something teachers could exploit and use as a context for other class activities. For example, Language or Visual arts lessons might focus on projects that bring the world of Avatar Academy to life through student created literature and images. As such, the Avatar Academy resource introduces the avatar mechanic as a platform for the Companion and Enhancement Card rewards in the Avatar Academy Game, and as a barometer for students' reflections of personal learning goals and outcomes.

Teachers recommended incorporating more technology, especially media. This lead to the production of a variety of online multimedia tutorials found on Avatar Academy Online (2012). This had the additional benefit of satisfying teachers' other comments requesting more instructional content students could complete independently. As such, multimedia presentations for welcome, introductory game play, and advanced game play tutorials were created and embedded for sharing via Avatar Academy Online. A fully stocked electronic catalogue of the entire collection of various Companion and Enhancement Cards was also created and incorporated in the blog. All black line masters were also reproduced electronically and are hosted on Avatar Academy Online. Overall, the scope and execution of the online resource was greatly increased as a result of teacher feedback.

Limitations of Avatar Academy

Some concerns of teachers were not addressed in the revised version of Avatar Academy. For example, the desire for a more enriched and encompassing lore heavy companion was not feasible for implementation with the limited scope of this project. Teachers identified the value of providing a comprehensive collection of lesson plans that tied curriculum expectations to in-game activities and the fantasy world of Avatar Academy. There was actually conflicting feedback on this point. While teachers praised the value of a comprehensive storyline meshed with academic goals, they also recommended that if feasibility did not permit a working model of that resource component in the class, the scope of the project be reduced to what could manageably be produced in representation of a final product ready for classroom implementation.

There were also concerns that the resource could be too appealing and ultimately act as a preoccupation for some young boys. While the resource has been designed to be appealing to students and spark engagement teachers, it would be potential for some boys to lack the personal management skills necessary to focus on their class work when necessary, or that the importance of the game would eclipse the importance of what students were achieving in class.

The desire to see greater online presence of electronic tools, such as reward distribution, collection tracking, and even game-play, were also communicated by teachers. Despite the value of these teacher identified absent elements, it was decided that the scope of the project and available resources did not allow for the addition of these components.

Implications for Practice

Educators communicated a desire for structured and meaningful opportunities to further integrate technology and acknowledge children's' interests and learning preferences in the classroom. With the heavy content-based demands of their jobs, reviewers indicated that they would embrace a resource that assists efforts to add technology to the repertoire of classroom tools in use. Even small implementations of technology may result in positive long term effects, in that once initiated, its use becomes increasingly easier to sustain and develop further. Increasing the scope of this project to include app based functionality and greater online footprint was indicated as an opportunity for growth by teachers.

For young students, especially many young boys, adjusting to the academic environment of school requires special treatment (Carr, 2010). Reviewers indicated that the acclimation of these children is a high priority concern for early childhood educators. Looking at the ubiquity of game-based learning present in children's leisure activities, it becomes apparent that this is an area of opportunity too often overlooked for providing familiarity between students' personal learning experiences and academic work. This resource is among a wave of first attempts at capturing game mechanics and translating them for use in the classroom. Based on initial teacher feedback, they, too, see the value of further incorporating these potentially class enhancing game mechanics.

In my opinion, continual learning has to be an all-in approach. And if we want institutionalized education to resonate with students, then educators need to start paying closer attention to children's existing learning preferences and interests and incorporating them in the classroom.

Implications for Theory

The role of motivation, interest, and engagement in the learning processes of games, while heavily theorized, requires study in application (Papastergiou, 2009). Current cognitive science studies report support for using game mechanics that reflect good theories of learning, but there is currently a large gap in studies focusing on the results of actually applying these mechanics in classroom environments to further the goals of educators. The reviewers in this study reported interest in the classroom application of game mechanics, and my interpretation is that there is sufficient interest to warrant further inquiry.

Implications for Further Research

Researchers and educators need to begin studying how people learn outside the classroom and other educational institutions. What tools, mediums, and venues for education (and entertainment, because the two are sometimes ubiquitous) do people choose, and how can these mediums and current instructional practices be adapted for integration. Children should not be overlooked in this examination. They are, in fact, very important as they represent the demographic that experiences first contact with institutionalized education, where the groundwork for all future dealings with formal education are laid.

For the purposes of this project, the scope of the resource development was confined to a reward system accompanied by a basic card trading and collecting game to enhance student motivation. Future renditions of the resource would see the scope vastly increased. For example, future plans include the implementation of an immersive storyline with student “quests” and “missions” that are directly related to curriculum

objectives. Students would be driving the game world storyline by accomplishing in-game goals that are directly linked to the curriculum expectations. Therefore, students' game achievements would be explicitly linked to their academic achievements. There are many such developments that were excluded from this rendition of the resource to accommodate the feasibility of its execution.

Final Word

In my opinion, the classroom of the future is built today. Children have increasingly demonstrated their learning preferences by turning towards games and technology to satisfy their own learning needs. I believe it falls to researchers and educators to demonstrate their own penchant for learning by adapting methods of instruction to achieve increased compatibility with children's learning preferences, with special attention to preferences exercised outside scholastic activities. The success of the student/school relationship depends on it.

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